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MINISTRY OF IRRIGATION AND POWER

REPORT

OF

THE KRISHNA GODAVARI COMMISSION

Annexure IX

Particulars of Irrigation and Hydro-electric schemes which came into operation after March, 1951

KRISHNA RIVER SYSTEM

July 1962

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Statement showing installed power, maximum to-date and ultimate annual irrigation and annual diversion

Name of State/ Category of scheme	Number	Istalled power k. W.	C.C.A. or Ayacut	Annual irrigation		Annual diversion	
				Maximum to-date	Ultimate	Maximum to-date	Ultimate
1	2	3	4	5	6	7	8
			acres			T.M.C.	
ANDHRA PRADESH			*Ayacut*				
Major and medium schemes	5	63,000	934,103	327,200	1,006,200	102.3	168.2
Minor schemes	21	—	22 749	11,625	20,000	7.7	11.7
Small tanks and diversions	1,001	—	59,259	34,219	50,000		
Total	**1,027**	**63,000**	**1,056,108**	**373,044**	**1,076,200**	**110.0**	**179.9**
MAHARASHTRA			*C. C. A.*				
Major and medium schemes	5	4,800	140,700	53,100	113,000	9.0	17.6
Minor schemes	30	—	57,183	22,031	45,000	1.8	3.5
Small tanks and diversion	128	—	14,996	7,241	12,000		
Total	**163**	**4,800**	**212,879**	**82,372**	**170,000**	**10.8**	**21.1**
MYSORE			*Ayacut*				
Major and medium schemes	5	33,200	566,800	91,300	566,800	22.5	100.4
Minor schemes	33	—	50,601	25,569	50,000	4.3	9.3
Small tanks and diversions	30	—	3,946	2,657	4,000		
Total	**68**	**33,200**	**621,347**	**119,526**	**620,800**	**26.8**	**109.7**
Total of major and medium schemes	15	101,000	1,691,600	471,600	1,686,000	133.8	286.2
Total of minor schemes and Small tanks and diversions	1,243	—	208,734	103,342	181,000	13.8	24.5
Grand Total	**1,258**	**101,000**	**1,900,331**	**574,942**	**1,867,000**	**147.6**	**310.7**

FOREWORD

The data presented in this Annexure relate to irrigation and hydro-electric schemes on the Krishna river system, which have come into operation after March 1951, and are based on the information obtained from the State Governments of Andhra Pradesh, Maharashtra and Mysore supplemented, here and there, by information collected from project reports, administration and other reports and official correspondence between the State Governments and the Planning Commission or the Ministry of Irrigation and Power.

INTRODUCTION

1.1 After a preliminary study of the nature and extent of irrigation developments, existing and proposed, in the Krishna and Godavari basins and after general discussions with the representatives of the State Governments concerned, the Commission decided to classify all schemes and projects into the following four groups :

(i) Major schemes to include all power projects and such other schemes as would each irrigate 50,000 acres or more annually;

(ii) Medium schemes—each intended to irrigate less than 50,000 acres annually but having an Ayacut or C.C.A. of not less than 5,000 acres;

(iii) Minor schemes—each having an Ayacut or C.C.A. of less than 5,000 acres but not less than 500 acres; and

(iv) Small tanks and diversions—each having an Ayacut or C.C.A. of less than 500 acres.

1.2 A form was drawn to show in detail such particulars of schemes and projects as were relevant to the Commission's work and the State Governments were requested to furnish the requisite data for each major and medium scheme, which came into operation after March, 1951. This form with explanatory note, is shown in Section 2. It was, however, found that the information sought by the Commission was not readily available with the State Governments; each State, therefore, set out to collect as much information as could be compiled in the time available.

Particulars of each major and medium project, as obtained from the State Governments, are given in Section 3. These were shown in draft form first to the representatives of the State Governments concerned, for verification. After appropriate modifications had been made, the revised drafts were discussed in a joint meeting at which the Commission had the benefit of comments made and views expressed by the representatives of other States. This led to some further changes, which have all been incorporated in Section 3. Some gaps in the data required still remained. These have been filled by the Commission; the assumed figures are shown in brackets.

1.3 The significance of the index numbers as given to each project in Section 3, is the same as explained in the Commission's Report.

1.4 Important particulars of all major and medium schemes arranged State-wise are given in Table I, including the maximum to-date and ultimate annual irrigation and the maximum to-date and ultimate annual diversion and also the installed power capacity of each scheme.

1.5 Since each minor scheme diverts but a small quantity of water, since the number of such schemes is relatively large and since most of the particulars specified for the major and medium projects were not available for the minor schemes, the Commission decided to request the State Governments to furnish only a few important facts regarding each minor scheme. These have been presented in Table II to the extent these could be made available by the State Governments.

1.6 As regards small tanks and diversions, their number runs into thousands and even the particulars called for the minor schemes were not available for individual small tanks and diversions. It was, therefore, decided to collect some particulars regarding these small tanks and diversions, not by individual works, but collectively for all the small tanks and diversions in each district. Even this information was not wholly available. The information obtained is shown in Table III.

1.7 An abstract of all information available regarding minor schemes and small tanks and diversions is shown in Table IV. This Table gives the number of total schemes of this kind, district-wise, the areas irrigated during 1959-60 or 1960-61 and the annual diversion during 1959-60 or 1960-61. The Commission have attempted to fill in the gaps in the data; the figures assumed are shown in brackets and suitable notes have been added to indicate the basis on which the assumptions have been made.

No records are available of the quantum of river supplies diverted by minor schemes or by small tanks and diversions. In order to get some idea of this quantum, the information contained in Table VI was collected from each State Government and was utilised in working out the annual diversions shown in Table IV.

1.8 The total number of schemes in each State, the total area irrigated and the total river supply diverted and also the total installed power are shown in a statement in the beginning of the Annexure.

Section 2

General form
for
recording particulars of Major and Medium projects
which came into operation
after March, 1951
with
explanatory notes

Name of scheme or system **Index Number**

indicating serial number, category of project, sub-basin and State or States

1. **Name of State**

State or States benefited by the scheme; if the scheme was in a different State prior to re-organisation of States, also the name of that State.

2. **Scope of the scheme or system**

Irrigation, hydro-electric or multi-purpose; if multi-purpose, all purposes are stated;
Whether based on flow or flow-cum-storage;
For irrigation schemes, acreage of C.C.A. or Ayacut is given
For hydro-electric schemes, installed power in k.W. is stated

3. **Source of supply**

Name of channel with name of place where diversion works are located, tributary and river.

Illustration : Sina at Sholapur/Bhima/**Krishna**
Upstream uses if any, existing and proposed :

4. **Description of the reservoir or tank**

Live storage; dead storage; carry-over; annual reservoir losses; filling period; depletion period; catchment area; area submerged; full reservoir level; minimum pond level or dead storage level.

If no canal takes off from the reservoir or tank :

type, length and height of dam; length and capacity of spillway; and number and capacity of outlets.

5. **Description of the headworks**

If a canal takes off above the dam :

type, length and height of dam, length and capacity of spillway, number and capacity of outlets including particulars of head regulator of the canal.

If the head works consist of a weir, anicut or barrage :

length of weir, anicut or barrage with discharging capacity; particulars of under sluices and of head regulator of canal; minimum pond level and catchment area upstream of headworks

6. **Description of the canals**

Name of canal; (contour or ridge); whether taking off on right or left; length of main canal (and of branches); one seasonal, two seasonal or perennial; lined or unlined; authorised capacity at head.

7. **Date of beginning of construction**

8. **Date of begnning of operation**

9. **Probable date of beginning of full operation**

IRRIGATION ASPECTS

10. Gross commanded area, culturable commanded area and Ayacut, district-wise

(i) In general, separate tables are prepared for each major canal ;

(ii) Ayacut figures are not given for schemes in Madhya Pradesh and Maharashtra.

Item	*Name of districts*		*Total*
	thousand acres		
G.C.A.			
C.C.A.			
Ayacut			

11. Area irrigated annually and intensity of irrigation

(i) Where the area irrigated is more than 10,000 acres, yearly crop-wise figures are given in Annexure I;

(ii) intensity of irrigation is worked out as percentage of area irrigated on total C.C.A. in case of Madhya Pradesh and Maharashtra and on Ayacut in case of Andhra Pradesh, Mysore and Orissa;

(iii) all figures are correct to first place of decimal;

	Area irrigated annually	*Intensity of irrigation*
(i)	Proposed	
(ii)	Actual maximum	

12. Normal rainfall and river supply diverted

(i) If there is more than one canal, separate tables are prepared for each major canal;

(ii) figures for column 2 are as read from monthly Isohytal maps;

(iii) figures in columns 3 and 4 are based on the sum-total of the rainfall figures for the month for all the stations in the commanded area divided by the number of stations;

(iv) figures in columns 7 and 8 represent,

$$\frac{\text{average cusecs diverted during the month}}{\text{authorised capacity of the canal}}$$

(v) figures in columns 2 to 4 are correct to first place of decimal and those in columns 5 to 8 to two places of decimal.

Month	Rainfall			River supply diverted		Capacity factor	
	Normal	Maximum	Minimum	Actual maximum	Proposed	Actual maximum	Proposed
1	2	3	4	5	6	7	8
	——inches——			——T. M. C.——			
June							
July							
—							
—							
—							
April							
May							
Total							

13. (a) **Depth of sub-soil water-table below ground level in the area proposed to be irrigated**

(b) **Nature and extent of annual fluctuation in the water table**

(c) **Has any study been made of the likely effect of the introduction of irrigation on sub-soil water-table ?**

Information is given only where data based on regular observations are available

14. (a) **Characteristics of soil (s) in the commanded area**

Results of scientific soil survey, if carried out, are given; otherwise, general classifaction specifying soil texture with depth of soil crest.

(b) **Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?**

Information is given only when scientific studies have been made

15. **Pattern of cultivation in the area commanded before the scheme came into operation**

(i) Paddy, wheat, sugar-cane and cotton are specified individually; any other crop which covers more than 5 percent of the total cropped area is also specified, all other crops are grouped under 'others';

(ii) crop percentages are worked out on the 'Grand Total' as given in the last column and are correct to the first place of decimal.

Perennial		*Two seasonal*				*Total cropped area (T. acres*
Percentage of principal crops	*Total area (T. acres)*	*Percentage of Principal crops*	*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T.acres)*	

16. (a) Proposed pattern of irrigated cultivation

(i) Paddy, wheat, sugar-cane and cotton are specified individually; any other crop which covers more than 5 percent of the total crop area is also specified, all other crops are grouped under 'others'.

(ii) crop percentages are worked out on the 'Grand Total' as given in the last column and are correct to the first place of decimal.

Perennial		*Two Seasonal*				*Grand Total (T. acres)*
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T.acres)*	

(b) Are there any rules for regulating crop pattern?

17. Actual crop pattern obtained after the introduction of irrigation

(i) Paddy, wheat, sugar-cane and cotton are specified individually ; any other crop which covers more than 5 per cent of the total crop area is also specified, all other crops are grouped under 'others';

(ii) crop percentages are worked out on the 'Grand Total' as given in the last column and are correct to the first place of decimal;

(iii) where the area irrigated annually is more than 10,000 acres cropwise figures are given in Annexure I

Perennial		*Two Seasonal*				
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	*Grand Total (T. acres)*

18. Duty and Delta at canal head

(i) Overall delta (as anticipated) represents

$$\frac{\text{total annual river supply diverted (proposed) vide item 12}}{\text{area proposed to be irrigated vide item 16}}$$

(ii) Overall delta (as obtained) represents

$$\frac{\text{total annual river supply diverted (actual) vide item 12}}{\text{area actually irrigated vide item 17}}$$

As anticipated							*As obtained*			
Duty (acres per mean cusec)			*Delta (feet)*				*Delta (feet)*			
Perennial	*Kharif*	*Rabi*	*Perennial*	*Kharif*	*Rabi*	*Overall*	*Perennial*	*Kharif*	*Rabi*	*Overall*

19. (a) Number of tanks in operation in the irrigated area and the area irrigated therefrom

It is specified whether area irrigated by tanks is included in or excluded from the C.C.A. or Ayacut of the scheme

(b) Number of wells in operation in the irrigated area and the area irrigated therefrom

It is specified whether area irrigated by wells is included in or excluded from the C.C.A. or Ayacut of the scheme

20. Quantum of river supplies available in relation to withdrawls

Whether river supply data available; the period of the year in which flow supplies are adequate to meet irrigation requirements; number of days during which flow supplies are in excess of irrigation requirements and quantum of excess; period during which irrigation requirements are met wholly or partly from storage and quantum so obtained.

POWER ASPECTS

21. River supplies diverted and operation head

Month	*As during*		*As proposed*	
	Range of operation head (feet)	*Mean supply passing through turbines (cusecs)*	*Range of operation head (feet)*	*Mean supply passing through turbines (cusecs)*
June				
July				
—				
—				
—				
April				
May				
Total	T.M.C.			T.M.C.

22. Disposal of tail-race waters

Where information is not available monthwise, the disposal of tail-race waters is indicated in general terms

Month	*During.....*	*as proposed*
June		
July		
—		
—		
April		
May		

23. **Development of load compared with power potential provided**

Upto-date position is indicated

24. **Quantum of river supplies available in relation to withdrawls**

Whether river supply data available; the period of the year in which flow are adequate to meet power requirements; number of days during which flow supplies are in excess of power requirements; period of the year during which power requirements are met wholly or partly from storage and quantum so obtained

GENERAL

25. **Aspects other than irrigation and power; water supply (month wise), if any, required for these aspects; financial returns**

Aspects such as navigation, water supply for towns, and supplies given for industrial uses are specified average utilisation for a number of year is given and the years specified.

26. **Total cost of the scheme**

27. **Cost per acre irrigated**

28. **Cost per k.W. power produced**

29. **Financial return of the scheme**

(i) as anticipated

(ii) as obtained

Worked out as percentage of net return (gross return less working expenses) on the total capital outlay

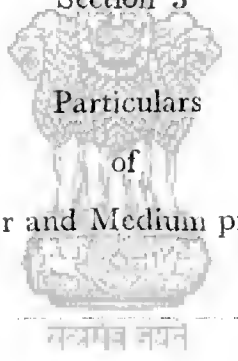
30. **Main features and purpose of the scheme**

31. **Special features of the scheme**

This item is included only if there are any special features not covered by items 1—30 above

Section 3

Particulars of Major and Medium projects



KOILSAGAR PROJECT 1B–K. 7–A.1

1. **Name of State** Andhra Pradesh (formerly in Hyderabad)

2. **Scope of the scheme or system**
Irrigation scheme; flow-cum-storage; Ayacut 12,000 acres

3. **Source of supply**
Peddavagu/**Krishna**
Utilisation upstream: existing or proposed, only small tanks

4. **Description of the reservoir or tank**

Live storage	1.59 T.M.C.
Dead storage	0.17 T.M.C.
Carry-over	Nil
Annual reservoir losses	0.50 T.M.C.
Filling period	June to November
Depletion period	December to May
Catchment area	709 square miles
Area submerged	2,560 acres
Full reservoir level	R.L. 1,344
Minimum pond level	R.L. 1,317

5. **Description of the head works**

Dam : ogee, 900 feet long 76 feet high, composite, 2,150 feet long, 85 feet high, and gravity, 350 feet long, 41 feet high

Spillway : ogee, 900 feet long, capacity 113, 760 cusecs

Outlets : two sluices one on each flank, with two vents each of 4 feet × 3 feet

6. **Description of the canals**
Right Canal (contour); 16 miles long; two-seasonal; unlined; capacity **180 cusecs**
Left Canal (contour); 9 miles long; two-seasonal; unlined; capacity **60 cusecs**

7. **Date of beginning of construction** 1948

8. **Date of beginning of operation** 1954

9. **Probable date of beginning of full operation** 1962-63

IRRIGATION ASPECTS

10. Gross commanded area, culturable commanded area and Ayacut, district-wise

District Mahboobnagar

Item	*Left Canal*	*Right Canal*	*Total*
	thousand acres		
G.C.A.	3.8	10.6	14.4
C.C.A.	3.0	9.5	12.5
Ayacut (both canals)			12.0

11. Area irrigated annually and intensity of irrigation (both canals)

	Area irrigated annually	*Intensity of irrigation on Ayacut*
(1) Proposed	14,500 acres	120.8 percent
(2) Actual maximum	9,800 „	81.7 „

12. Normal rainfall and river supply diverted

Month	*Rainfall*			*River supply diverted**				*Capacity factor*			
				Actual	*Maximum*	*Proposed*		*Actual*	*Maximum*	*Proposed*	
	Normal	*Maximum*	*Minimum*	*Left Canal*	*Right Canal*	*Left Canal*	*Right Canal*	*Left Canal*	*Right Canal*	*Left Canal*	*Right Canal*
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*
	inches			*thousand million cubic feet*							
June	3.9	6.0	0.8	0.13	0.26	0.05	0.15	0.83	0.56	0.32	0.32
July	9.1	22.3	3.7	0.18	0.36	0.10	0.30	1.12	0.75	0.62	0.62
August	5.7	13.1	3.0	0.19	0.38	0.17	0.49	1.18	0.79	1.06	1.02
September	7.6	15.4	2.9	0.18	0.36	0.15	0.44	1.15	0.77	0.96	0.94
October	3.3	5.3	1.9	0.18	0.37	0.15	0.46	1.12	0.77	0.93	0.95
November	0.2	0.9	Nil	0.09	0.17	0.10	0.29	0.58	0.36	0.64	0.62
December	Nil	Nil	„	0.01	0.03	0.01	0.03	0.06	0.06	0.06	0.06
January	„	„	„	0.04	0.08	0.03	0.10	0.25	0.17	0.19	0.21
February	„	„	„	0.04	0.08	0.03	0.09	0.28	0.18	0.21	0.21
March	0.4	1.3	„	0.04	0.09	0.03	0.10	0.25	0.19	0.19	0.21
April	0.6	1.6	„	0.06	0.12	0.02	0.07	0 38	0.26	0.13	0.15
May	2.5	7.2	0.1	0.01	0.01	0.01	0.03	0.06	0.02	0.06	0.06
Total	**33.3**			**1.15**	**2.31**	**0.85**	**2.55**				
Total for both canals					**3.46**		**3.40**				

**Data of canal withdrawals not made available*

13. Not available

14. (a) **Characteristics of soils in the commanded area**

Red, sandy loam and black

(b) **Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?**

No

15. **Pattern of cultivation in the area commanded before the scheme came into operation**

Kharif				
Percentage of principal crops				*Total cropped area (T. acres)*
Paddy	*Jowar*	*Bajra*	*Others*	
15.3	50.0	9.5	25.2	12.5

16. (a) **Proposed pattern of irrigated cultivation.**

Abi		*Tabi*		
Percentage or principal crops *Paddy*	*Total area (T. acres)*	*Percentage of principal crops* *Paddy*	*Total area (T. acres)*	*Grand Total (T. acres)*
82.8	12.0	17.2	2.5	14.5

(b) **Are there any rules for regulating crop pattern ?**

No, but the cultivator is required to pay water rate for 100 percent area under *abi* and such *tabi* as he may grow.

17. **Actual crop pattern obtained after the introduction of irrigation**

	Abi		*Tabi*		
	Percentage of principal crops *Paddy*	*Total area (T. acres)*	*Percentage of principal crops* *Paddy*	*Total area (T. acres)*	*Grand Total (T. acres)*
During 1959-60 (year of maximum river supply diverted)	75.0	6.6	25.0	2.2	8.8

18. Duty and Delta at canal head

Crop period : *Abi* : June to November
Tabi : December to May

As anticipated					*As obtained*		
Duty (acres per mean cusec)		*Delta (feet)*			*Delta (feet)*		
Abi	*Tabi*	*Abi*	*Tabi*	*Overall*	*Abi*	*Tabi*	*Overall*
64	56	5.4	5.0	5.4	9.4	6.1	8.2

19. (a) Number of tanks in operation in the irrigated area and the area irrigated therefrom

31 tanks with an Ayacut of 1,589 acres, merged in the project

(b) Nnmber of wells in operation in the irrigated area and the area irrigated therefrom

76 wells with an Ayacut of 208 acres, merged in the project

20. Quantum of river supplies available in relation to withdrawls

River supply data not available. It is, however, stated that river supply is an excess of irrigation requirements.

21. to 24. Not available

GENERAL

25. Aspects other than irrigation and power ; water supply (month-wise), if any required for these aspects; financial returns

Nil

26. Total cost of the scheme Rs. 87 lakhs

27. Cost per acre irrigated Rs. 698

28. Not applicable

29. Financial return of the scheme

(1) as anticipated 1.26 percent

(2) as obtained Not available

30. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture; increase in cropped area

TUNGABHADRA PROJECT **2B—K.8—A.2/My.2**

1. **Name of State**

Andhra Pradesh and Mysore (originally the Right Bank Canal was in Madras and the Left Bank Canal in Hyderabad).

2. **Scope of the scheme or system.**

Multipurpose scheme; flow-cum-storage; (i) Irrigation, Ayacut Mysore 672,340 acres, Andhra Pradesh 156,900 acres; (ii) Power, right side, 2 x 9,000 k.W. at the dam, 3 x 9,000 k.W. in the canal; left side, 2 x 9,000 k.W. at the dam.

3. **Source of supply**

Tungabhadra at Mallapuram/**Krishna**

Irrigation and power uses upstream, both existing and contemplated

4. **Description of the reservoir or tank**

Live storage	117.40 T.M.C.
Dead storage	15.60 T.M.C.
Carry-over	Nil
Annual reservoir losses	18.00 T.M.C.
Filling period	June to October
Depletion period	November to May
Catchment area	10,880 square miles
Area submerged	93,440 acres (all in Mysore)
Full reservoir level	R.L. 1,633
Minimum pond level	R.L. 1,582

5. **Description of the head works**

Dam: 8,034 feet long (non spillway section 3,440 feet), 162 feet high, spillway section 2,300 feet, composite dam 267 feet at the left end, and 1,527 feet, on the extreme left flank to plug saddle 2, and earth dam 500 feet long to plug saddle 1 on the left.

Spillway: 2,300 feet long, fitted with 33 gates, each 60 feet x 20 feet, total capacity 650,000 cusecs

Outlets :	Right Bank	Left Bank
(i) Low Level canal, irrigation and power sluices	four, 11 feet diameter each	ten, 8.8 feet x 11.5 feet each
(ii) Existing irrigation sluices pre-Moghul channels Bassavanna and Raya Channels	one, 6 feet x 12 feet	Nil
(iii) High Level channel sluices	ten, 6 feet x 12 feet each	four, 4 feet x 5 feet each
(iv) Sluices for water supply	one, 2 feet diameter	one, 2 feet diameter
(v) River sluices	two, 6 feet x 12 feet each, total capacity 3,600 cusecs for both at R.L. 1,582	Nil

6. Description of the canals

(i) Right Bank Low Level canal (contour); 217 miles long (first 14 miles is power canal); first 75 miles perennial, rest two seasonal; lined upto Mile 14; authorised capacity **2,500 cusecs** (for irrigation and power) and **1,800 cusecs** at mile 14 (for irrigation only)

(ii) Left Bank Low Level canal (contour); 127 miles long with 14 miles branches at tail (first 14 miles of canal is power-cum-irrigation canal); perennial; lined; authorised capacity **7,000 cusecs** (for irrigation and power) and **3,200* cusecs** at mile 14 (for irrigation only), cross drainage works on the canal have been built to accomodate two feet increase in Full Supply Depth.

7. Date of beginning of construction

Irrigation scheme February 1945; Hydro-electric scheme 1952.

8. Date of beginning of operation

Irrigation scheme July 1953; Hydro-electric scheme, Dam Power House, Right side 2 units in 1957, Canal Power House, 2 units in 1958; 1 unit in Dam Power House, Left side December, 1961.

9. Probable date of full operation.

Irrigation	June, 1964
Power	June, 1963

**It was found in 1956 that, with the sanctioned quantum of diversion and the approved crop pattern, a peak discharge in the canal of 3,900 cusecs was necessary, the canal below mile 48 is being constructed for 3,900 cusecs.*

IRRIGATION ASPECTS

10. Gross commanded area, culturable commanded area and Ayacut, district-wise

Districts	*Right Bank Canal*			*Left Bank Canal*	*Grand Total*
	Bellary (Mysore)	*Kurnool (Andhra Pradesh)*	*Total*	*Raichur (Mysore)*	
	thousand acres				
G.C.A.	294.0	565.5	**859.5**	900.0	**1,759.5**
C.C.A.	249.0	491.0	**740.0**	800.0	**1,540.0**
Ayacut	92.3	156.9	**249.2**	580.0*	**829.2**

11. Area irrigated annually and intensity of irrigation *(See Annexure I)*

	Right Bank Canal						*Left Bank Canal*	
	Area irrigated annually			*Intensity of irrigation on Ayacut*			*Area irrigated annually*	*Intensity of irrigation on Ayacut*
	Mysore	*Andhra Pradesh*	*Total*	*Mysore*	*Andhra Pradesh*	*Total*		
	thousand acres			*percentage*			*thousand acres*	*percentage*
(i) Proposed	92.3	156.9	**249.2**	100.0	100.0	**100.0**	580.0	**100.0**
(ii) Actual maximum	50.0	105.4	**155.4**	54.2	67.2	**62.4**	127.2	21.9

Note: (i) *Left Bank Canal completed so far upto mile 65 only with a localised Ayacut of 257,000 acres*

(ii) *Distribution system of Right Bank Canal (in Mysore) is nearing completion.*

According to Andhra Pradesh, the Ayacut of 580,000 acres shown under Raichur (Mysore) should be 460,000 acres and the remaining 120,000 acres should be in Gadwal and Alampur Talukas, formerly in Raichur district and now in Mehbubnagar district of Andhra Pradesh. The G.C.A. corresponding to the Ayacut of 580,000 acres should be 1,080,000 acres lying partly in Raichur district and partly in Mehbubnagar district. See* **8C.3–K.8–A.8. *On the other hand, Mysore has put up papers indicating that the Hyderabad Government in 1954-56 did not intend irrigation from this canal to be extended beyond Mile 141 into the Gadwal and Alampur Talukas.*

12. Normal rainfall and river supply diverted

(i) Right Bank Low Level Canal

Month	Rainfall						River supply diverted				Capacity factor (capacity 1,800 cusecs)	
	Normal		Maximum		Minimum		Actual maximum at mile 14	Proposed		Total	At actual maximum mile 14	Proposed
	Mysore	Andhra Pradesh	Mysore	Andhra Pradesh	Mysore	Andhra Pradesh		Mysore	Andhra Pradesh			
	inches						T.M.C.					
June	2.0	2.5	6.4	5.4	0.5	1.1	3.97	1.74	2.14	3.88	0.85	0.83
July	2.4	2.9	5.7	8.2	0.2	2.1	3.90	1.94	2.65	4.59	0.81	0.95
August	2.1	4.0	5.2	17.0	0.1	0.6	3.81	1.92	2.65	4.57	0.79	0.95
September	6.2	4.0	13.8	11.1	0.9	2.9	3.93	1.60	2.51	4.11	0.84	0.88
October	4.2	3.8	17.3	9.9	0.2	0.8	3.94	1.69	2.38	4.07	0.82	0.84
November	2.1	1.5	5.7	3.5	Nil	0.1	3.58	2.20	2.30	4.50	0.77	0.96
December	0.2	0.2	1.7	4.0	,,	0.1	3.69	2.26	1.43	3.69	0.77	0.77
January	0.1	0.1	0.9	0.4	,,	0.2	3.49	2.26	2.31	4.57	0.72	0.95
February	0.5	0.2	2.3	0.5	,,	0.2	3.12	1.40	2.09	3.49	0.71	0.80
March	0.2	0.2	1.9	1.9	,,	0.1	3.64	0.83	2.31	3.14	0.75	0.65
April	0.7	0.8	2.9	1.8	,,	Nil	2.42	0.80	1.09	1.89	0.52	0.41
May	1.8	2.0	4.0	9.5	0.2	0.7	0.70	0.36	0.08	0.44	0.15	0.09
Total	22.5	22.2					**40.19***	**19.00**	**23.94**	**42.94**		

**The river supply diverted at head was 68.42 T.M.C. of which 40.19 T.M.C. was let into the canal for irrigation ; balance was escaped into the river.*

(ii) Left Bank Low Level Canal

Month	Rainfall			River supply diverted		Capacity factor (capacity 3,200 cusecs)	
	Normal	Maximum	Minimum	Actual maximum	Proposed	Actual maximum	Proposed
	——————inches——			——T.M.C.——			
June	3.0	5.1	0.9	1.48	5.46	0.18	0.72
July	2.5	7.8	0.4	4.65	8.21	0.54	0.96
August	2.5	5.8	0.2	4.89	8.35	0.57	0.97
September	5.5	10.3	1.0	4.80	9.00	0.58	1.09
October	3.5	11.7	0.1	4.97	10.02	0.58	1.17
November	1.5	3.8	Nil	4.85	8.84	0.58	1.07
December	0.2	0.8	,,	1.66	7.75	0.19	0.90
January	0.1	1.2	,,	2.60	8.21	0.30	0.96
February	0.2	3.8	,,	3.47	7.81	0.45	1.01
March	0.2	1.1	,,	3.50	4.83	0.41	0.56
April	0.8	2.0	0.1	2.74	6.21	0.33	0.75
May	1.8	3.6	Nil	2.75	7.06	0.32	0.82
Total	**21.8**			**42.36**	**92.25**		

13. Not available

14. (a) Characteristics of soils in the commanded area

Bellary district : Black soils and red gravelly loams. Black soils are derived variously from top rocks, granites, shales and limestone of Cuddapah Kurnool series. Soils are either shallow or deep from two feet depth to even nine feet and are usually underlain with decomposed rocky material locally called as *Garsee*. They have open texture, loamy to sandy intermixed with gravel and quartz pebbles

Raichur district : Red sandy soils and shallow to deep black soils derived principally from granites. Red loamy soils occur generally at higher elevations and are found either singly or together with black soils

Name of taluka	Heavy Black	Mixed	Red
Adoni	51 percent	23 percent	26 percent
Alur	70 ,,	23 ,,	70 ,,
Pathikonda	40 ,,	14 ,,	46 ,,
Kurnool	58 ,,	26 ,,	16 ,,

(b) Has any study been made of the likely effect of the introduction of irrigation on soils characteristics ?

A study of the likely effect on soils due to introduction of irrigation has been made at Shriguppa, Bellary district and at Dhadersugur Research Farm. As per the report of the Shriguppa Research Farm, it is expected that there will be no rise of salt and consequent adverse effects but on the other hand there is definite wash down of the soluble salts. So, no alkalinity will be formed as a result of irrigation in black soils of the Ayacut.

15. (a) Pattern of cultivation in the area commanded before the scheme came into operation

	Perennial			*Kharif*						*Rabi*			
	Percentage of principal crops		*Total area (T. acres)*	*Percentage of principal crops*					*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	*Total cropped area (T. acres)*
	Sugar-cane	*Garden*		*Cotton*	*Paddy*	*Groundnut*	*Jowar*	*Others*		*Cotton*	*Others*		
Right bank													
Mysore	10.0	—	**24.9**	—	0.5	8.0	29.0	3.5	**102.1**	20.0	29.0	**122.0**	249.0
Andhra Pradesh	—	—	—	12.0	1.0	25.0	36.0	26.0	**296.0**	included in *Kharif*			296.0
Total			**24.9**						**398.1**			**122.0**	545.0
Left Bank													
Mysore	0.1	0.4	**4.0**	—	0.5	4.0	30.0	—	**276.0**	15.0	50 0	**520.0**	800.0

(b) Are there any rules for regulating crop pattern ?

Mysore — Legislation under consideration

Andhra Pradesh — Wet and dry areas are specified

16. Proposed pattern of irrigated cultivation

	Perennial			*Kharif*					*Rabi*					
	Percentage of principal crops		*Total area (T.acres)*	*Percentage of principal crops*				*Total area (T. acres)*	*Percentage of principal crops*				*Total area (T. acres)*	*Grand Total (T.acres)*
	Sugarcane	*Garden*		*Paddy*	*Jowar*	*Ground-nut*	*Others*		*Paddy*	*Jower*	*Wheat*	*Cotton*		
Right Bank Mysore	16.6	—	15.3	9 6	22.3	8.6	1.2	38.5	9.6	21.0	2.5	8.6	38.5	92.3
Andhra Pradesh	—	—	—	24.2	—	—	—	38.0	—	75.8	——		118.9	156.9
Total			**15.3**					**76.5**					**157.4**	**249.2**
Left Bank Mysore	2.6	5.2	45.0	8.6	34.5	—	—	250.0	1.7	34.5	—	12.9	285.0	580.0
Grand Total			**60.3**					**326.5**					**442.4**	**829.2**

**See note under item 10*

17. Actual crop pattern obtained after the introduction of irrigation

During 1960—61

	Perennial			*Kharif*				*Rabi*					
	Percentage of principal crops		*Total area (T. acres)*	*Percentage of principal crops*			*Total area (T. acres)*	*Percentage of principal crops*				*Total area (T. acres)*	*Grand Total (T. acres)*
	Sugarcane	*Garden*		*Paddy*	*Jowar*	*Others*		*Paddy*	*Jowar*	*Cotton*	*Others*		
Right Bank Mysore	23.6	—	11.8	28.0	17.6	4.0	24.8	6.8	10.0	8.0	2.0	13.4	50.0
Andhra Pradesh	—	—	—	31.3	—	—	33.0	—	——	68.7	——	72.3	105.3
Total			**11.8**				**57.8**					**85.7**	**155.3**
Left Bank Mysore	8.9	0.5	11.9	11.8	28.8		51.7	—	——	50.0	——	63.6	127.2
Grand Total			**23.7**				**109.5**					**149.3**	**282.5**

18. Duty and Delta at canal head

Andhra Pradesh (Right canal)		Mysore			
		Right Canal		Left Canal	
Paddy (*abi*) June to November (183 days)	*Kharif*	122 days	*Kharif* paddy	152 days	
Rabi (dry) December to April (151 days)	*Rabi*	122 days	Other *kharif*	122 days	
	Sugarcane	335 days	*Rabi*	151 days	

	As anticipated													*As obtained*			
	Duty (acres per mean cusec)						*Delta (feet)*							*Delta (feet)*			
	Perennial		*Kharif*		*Rabi*		*Perennial*		*Kharif*		*Rabi*		*Overall*	*Perennial*	*Kharif*	*Rabi*	*Overall*
	Sugarcane	*Garden*	*Paddy*	*Jowar*	*Paddy*	*Jowar*	*Sugarcane*	*Garden*	*Paddy*	*Jowar*	*Paddy*	*Jowar*					
Right Bank																	
Mysore	53	—	44	140	31	117	12.7	—	5.5	1.8	7.9	2.1	4.7	Not avail b'e			5.9
Andhra Pradesh	—	—	55	—	dry	120	—	—	6.8	—	(dry)	2.5	3.5	—	7.2	2.7	
Left Bank																	
Mysore	55	100	45	140	35	120	13.3	7.3	6.7	1.8	8.3	2.4	3.7	Not available			7.6
					Cotton 120						Cotton 2.4						

19. (a) Number of tanks in operation in the irrigated area and the area irrigated therefrom

Mysore		Andhra Pradesh
Bellary District	Raichur District	
5 tanks, irrigating 273 acres	71 tanks, irrigating about 1,800 acres	164 tanks, irrigating 2,770 acres merged in the project

The old irrigation is being merged in the new canals and the old tanks will be abandoned.

(b) Number of wells in operation in the irrigated area and the area irrigated therefrom

Mysore	Andhra Pradesh
Not available	73 wells

20. Quantum of river supplies available in relation to withdrawals

River supplies are adequate to meet project requirements

POWER ASPECTS

21. River supplies diverted and operation head

Right side at the dam

Month	*As during 1960-61*		*As proposed*		
	Range of operation head (feet)	*Average supply passing through turbines (cusecs)*	*Range of operation head (feet)*	*Average supply passing through turbines (cusecs)*	
				according to Mysore*	according to Andhra-Pradesh+
June	67.5	1,950	Gross head will vary	1,496	2,600
July	75.5	1,700	from 90 feet to 41 feet	1,713	2,600
August	84.0	1,310		1,705	2,600
September	86.5	1,510		1,585	2,600
October	87.5	1,620		1,519	2,600
November	88.5	1,510		1,735	2,600
December	88.5	1,820		1,377	2,600
January	87.5	1,800		1,705	2,600
February	86.5	2,060		1,442	2,600
March	74.5	1,920		1,172	2,600
April	67.5	2,080		729	1,500
May	63.5	2,100		164	1,000
				42.92 T.M.C.	**74.86 T.M.C.**

Left side at the dam : The power house was not in operation during 1960-61. The supplies to be passed into the Left Bank Canal vide item 10 above will be diverted for generating power

**These releases are equal to those required for irrigation in the Low Level Canal as per item 12 above and may be exceeded when the reservoir is surplussing*

+These releases are subject to prior claims of irrigation interests under this project and of irrigation interests lower down, as of 1951

22. **Disposal of tail-race waters**

Used in the canals most of the time; during surplussing period, partly escaped into the river

23. **Development of load compared with power potential provided**

Andhra Pradesh—The installed capacity (4 X 9,000 k.W.=36,000 k.W.) was fully utilised by 1959

24. **Quantum of river supplies available in relation to withdrawals**

River supplies are adequate to meet power requirements

GENERAL

25. **Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns**

Navigation is contemplated in the Left Bank Canal from mile 24 to mile 127 (Mysore); development of fisheries, maximum yield expected, 5,400 maunds per year

26. **Total cost of the scheme**

Dam	Rs. 16,96 lakhs
Right Bank Low level Canal	Rs. 10,36 ,,
Left Bank Low level Canal	Rs. 25,00 ,,
Power Andhra Pradesh	Rs. 15,64 ,,
Power Mysore	Not available

27. **Cost per acre irrigated**

Right Bank Canal		*Left Bank Canal*
Mysore	*Andhra Pradesh*	
Rs. 1,122	Not available	Rs. 552

28. **Cost per k.W. power produced** Rs. 1,540 per k.W. (installed)

29. Not available

30. **Main features and purpose of the scheme**

Major irrigation and power development

TUNGABHADRA PROJECT

STATEMENT SHOWING AREA IRRIGATED BY CROPS

Annexure I

Year	Area irrigated by crops (acres)											
	Right bank canal							Total for both States	Left bank canal			Total
	Mysore				Andhra Pradesh				Mysore			
	Perennial	Kharif	Rabi	Total	Wet	Dry	Total		Perennial	Kharif	Rabi	
1953-54	Break up not available			**500***	Not available		**500***					
54-55	Break up not available			**1,500***	Not available		**1,500***					
55-56	2,799*	5,187*	3,223*	**11,209***	712*	185*	**897***	12,106*				
1956-57	4,320	10,600	9,580	**24,500**	7,862	7,422	**15,284**	39,784	4,475	8,635	5,587	**18,697**
57-58	5,880	22,000	13,120	**41,000**	12,112	10,837	**22,949**	63,949	6,631	10,080	11,990	**28,701**
58-59	9,990	20,000	13,010	**43,000**	19,958	32,769	**52,727**	95,727	8,223	11,623	20,903	**40,749**
59-60	11,545	23,500	13,455	**48,500**	27,819	41,566	**69,385**	117,885	8,818	13,542	31,773	**54,133**
60-61	11,850	24,750	13,400	**50,000**	33,045	72,315	**105,360**	155,360	11,931	(51,700)	(63,600)	**127,174**
Average for the 5 years from 1956-57 to 1960-61	8,717	20,170	12,513	**41,400**	20,159	32,982	**53,141**	94,541	8,016	(19,116)	(26,771)	**53,891**

** Not considered for calculating averages, figures in brackets are assumed figures*

RAJOLIBUNDA DIVERSION SCHEME 3B-K.8-A.3/My.3

1. **Name of State** Mysore and Andhra Pradesh (formerly in Hyderabad)
2. **Scope of the scheme or system**
   Irrigation scheme; based on river flow and assistance from Tungabhadra reservoir; Ayacut 92,900 acres
3. **Source of supply**
   Tungabhadra at Rajolibunda/**Krishna**
   Irrigation uses upstream, both existing and contemplated
4. Not applicable
5. **Description of the head-works**
   Anicut : masonry, 2,690 feet long, 31 feet high, capacity 750,000 cusecs
   Outlets : scouring sluices, 3 vents, each 6 feet x 7 feet
   River sluices : five vents, each 6 feet x 7 feet
   Catchment area : 23,717 square miles (between Tungabhadra reservoir and anicut 12,837 square miles)
6. **Description of the canal**
   Rajolibunda Canal (contour); left bank; 89 miles long (first 26-27 miles in Mysore, rest in Andhra Pradesh); partly perennial and partly two seasonal; lined; authorised capacity **850 cusecs** (**771 cusecs** at Mysore/Andhra Pradesh border)
7. **Date of beginning of construction** 1944
8. **Date of beginning of operation** 1958
9. **Probable date of beginning of full operation**
   1962 in Mysore and 1963 in Andhra Pradesh

IRRIGATION ASPECTS

10. **Gross commanded area, culturable commanded area and Ayacut, district-wise**

State	Mysore	Andhra Pradesh	Total
District	Raichur	Mahbubnagar	
G.C.A.	8.0	132.7	140.7
C.C.A.	6.1	117.7	123.8
Ayacut	5.9	87.0	92.9

11. **Area irrigated annually and intensity of irrigation**

	Area irrigated annually			*Intensity of irrigation on Ayacut*		
	Mysore	*Andhra Pradesh*	*Total*	*Mysore*	*Andhra Pradesh*	*Total*
	——thousand acres——			*——percentage——*		
(i) Proposed	5.9	87.0	92.9	100.0	100.0	100.0
(ii) Actual maximum	3.7	16.4	20.1	62.7	18.9	21.6

12. Normal rainfall and river supply diverted

Month	Rainfall						River supply diverted				Capacity factor (capacity 850 cusecs)	
	Normal		Maximum		Minimum		Actual maximum at head	Proposed			Actual maximum	Proposed
	Mysore	Andhra Pradesh	Mysore	Andhra Pradesh	Mysore	Andhra Pradesh		Mysore	Andhra Pradesh	Total		
1	2	3	4	5	6	7	8	9	10	11	12	13
	inches						T.M.C.					
June	3.0	3.5	9.3	7.5	0.7	0.8	Nil	0.09	1.95	**2.04**	—	0.93
July	4.0	5.0	7.1	13.6	0.5	2.2	0.62	0.16	1.95	**2.11**	0.27	0.93
August	3.7	4.5	9.4	17.4	Nil	1.6	0.81	0.14	1.74	**1.88**	0.36	0.83
September	6.1	6.0	10.2	12.9	1.3	0.9	0.94	0.16	1.62	**1.78**	0.42	0.81
October	3.2	3.0	16.0	6.5	Nil	0.1	1.18	0.15	1.90	**2.05**	0.52	0.90
November	0.8	1.3	5.3	4.0	,,	0.1	1.11	0.09	1.81	**1.90**	0.50	0.86
December	0.1	0.1	0.9	0.6	,,	0.1	1.23	0.05	0.20	**0.25**	0.54	0.11
January	0.2	0.1	1.5	0.7	,,	Nil	1.16	0.07	1.16	**1.23**	0.51	0.54
February	0.3	0.3	2.2	0.5	,,	0.3	1.11	0.08	0.93	**1.01**	0.54	0.49
March	0.3	0.3	1.6	2.6	,,	0.3	1.19	0.06	1.32	**1.38**	0.52	0.61
April	0.6	0.8	1.7	3.0	,,	0.1	1.01	0.05	1.11	**1.16**	0.46	0.53
May	1.6	1.5	5.7	10.4	,,	0.4	Nil	0.05	0.24	**0.29**	—	0.13
Total	**23.9**	**26.4**					**10.36**	**1.15**	**15.93**	**17.03**		

13. Not available

14. (a) Characteristics of soils in the commanded area

Mysore

Red loamy soils and medium to deep black soils; red loamy soils are pale yellow to bright red, shallow to medium, light texture and well drained. Medium to deep black soils are deep black to grey in colour; depth ranging up to 10 feet or more.

Andhra Pradesh

Mostly black soil; in some parts red loamy soil, sandy loam and silty loam, and clayey loam

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

Mysore

Yes, at Sirguppa Research Farm, Bellary District. No adverse effects on the soil due to introduction of irrigation are reported

Andhra Pradesh

No

15. (a) Pattern of cultivation in the area commanded before the scheme came into operation

	Perennial		Kharif					Rabi				Total cropped area (T. acres)
	Percentage of principal crops	Total area (T. acres)	Percentage of principal crops				Total area (T. acres)	Percentage of principal crops			Total area (T. acres)	
	Garden		Paddy	Groundnut	Jowar	Others		Wheat	Jowar	Others		
Mysore	7.5	**0.4**	0.5	7.0	24·0	18.5	**3.0**	0.5	23.5	18.5	**2.6**	**6.0**
Andhra Pradesh	—	—	8.0	—	25.0	67.0	**66.4**	—	—	—	—	**66.4**

(b) Are there any rules for regulating crop pattern ?

Mysore — Legislation under consideration

Andhra Pradesh — Paddy and perennial areas are specified

16. Proposed pattern of irrigated cultivation

	Perennial			Kharif			Rabi				Grand Total (T. acres)
	Percentage of principal crops		Total area (T.acres)	Percentage of principal crops		Total area (T.acres)	Percentage of principal crops			Total area (T. acres)	
	Sugarcane	Garden		Paddy	Jowar		Paddy	Jowar	Others		
Mysore	—	9.8	0.6	27.1	27.3	3.2	8.5	27.3	—	2.1	5.9
Andhra Pradesh	5.1	—	4.5	39.7	—	34.5		55.2		48.0	87.0
Total			5.1			37.7				50.1	92.9

17. Actual crop pattern obtained after the introduction of irrigation

	Perennial		Kharif		Rabi		Grand Total (T.acres)
	Percentage of principal crops	Total area (T.acres)	Percentage of principal crops	Total area (T.acres)	Percentage of principal crops	Tota area (T. acres)	
	Garden		Paddy		Dry crops		
Mysore	6.0	0.2	25.0	0.9	69.0	2.6	3.7
Andhra Pradesh	—	—	56.5	9.3	43.5	7.1	16.4
Total		0.2		10.2		9.7	20.1

18. Duty and Delta at canal head

	As anticipated													As obtained
	Duty (acres per mean cusec)						Delta (feet)							Overall Delta (feet)
	Perennial		Kharif		Rabi		Perennial		Kharif		Rabi		Overall	
	Sugar-cane	Garden	Paddy	Others	Paddy	Others	Sugar-cane	Garden	Paddy	Others	Paddy	Others		
Mysore	—	100	40	140	35	120	—	7.3	6.7	1.8	8.3	2.4	4.2	11.8
Andhra Pradesh	90	—	50	—	—	150	7.3	—	6.0	—	—	1.2		

19. (a) **Number of tanks in operation in the irrigated area and the area irrigated therefrom**

Mysore	Andhra Pradesh
Nil	10 tanks not merged with the scheme

(b) **Number of wells in operation in the irrigated area and the area irrigated therefrom**

Mysore	Andhra Pradesh
Nil	190 wells

20. **Quantum of river supplies available in relation to withdrawals**

River supply likely to be adequate for canal requirements

21. **to 24.** Not applicable

GENERAL

25. **Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns**

Nil

26. **Total cost of the scheme**

Original estimated cost Rs. 1,63 lakhs for both States
Anticipated cost about Rs. 4,50 lakhs

27. **Cost per acre irrigated** Rs. 484

28. Not applicable

29. **Financial return of scheme**

(1) **as anticipated** 4.7 percent on original estimate, for anticipated cost figure not available

(2) **as obtained** Not available

30. **Main features and purpose of the scheme**

Mysore: Conversion of 2,000 acres of dry crops to paddy and conversion of 4,000 acres of rain-fed cultivation to irrigated cultivation

Andhra Pradesh: Conversion of rain-fed cultivation to irrigated agriculture (66,000 acres) and extension of cultivation to uncultivated but cultivable areas (21,000 acres)

BHAIRAVANITIPPA PROJECT

4B-K. 9-A.4

1. **Name of State** Andhra Pradesh (formerly in Madras)
2. **Scope of the scheme or system**
   Irrigation scheme; flow-cum-storage; Ayacut 12,000 acres
3. **Source of supply**
   Hagari at Bhairavanitippa/Tungabhandra/**Krishna**
   considerable upstream uses both existing and proposed
4. **Description of the reservoir or tank**

Live storage	2.31 T.M.C.
Dead storage	0.32 ,,
Carry-over	Nil
Annual reservoir losses	0.78 T.M.C.
Filling period	May to November
Depletion period	December to April
Catchment area	5,557 square miles
Area submerged	4,995 acres
Full reservoir level	1,655 (originally 1,650)
Minimum pond level	1,633

5. **Description of the head-works**
   Dam : earthen, 6,714 feet long, 54 feet high
   Spillway : 616 feet long, fitted with 12 gates, 40 feet x 15 feet each and 2 scour vents 16 feet x 10 feet each, total capacity 120,000 cusecs
   Sluices : left side, one vent, 5 feet x 5 feet, capacity 181 cusecs; right side, one vent, 2.5 feet x 4 feet, capacity 83 cusecs
6. **Description of the canals**
   Right Side Canal (contour); 9 miles long; two seasonal; unlined; authorised capacity **83 cusecs**
   Left Side Canal (contour); 15.4 miles long; two seasonal; unlined; authorised capacity **181 cusecs**
7. **Date of beginning of construction** December 1954
8. **Date of beginning of operation** Partially, since November 1958
9. **Probable date of beginning of full operation** July 1962

IRRIGATION ASPECTS

10. Gross commanded area, culturable commanded area and Ayacut, district-wise

District Anantapur

	Right Side Canal	*Left Side Canal*	*Total*
	thousand acres		
G.C.A.	5.7	12.5	**18.2**
C.C.A.	4.0	8.0	**12.0**
Ayacut	4.0	8.0	**12.0**

11. Area irrigated annually and intensity of irrigation (both canals)

	Area irrigated annually	*Intensity of irrigation on Ayacut*
(*i*) Proposed	17,000 acres	141.7 percent
(*ii*) Actual maximum	8,700 ,,	72.5 ,,

12. Normal rainfall and river supply diverted

Month	*Rainfall*			*River supply diverted*				*Capacity factor*			
				Actual maximum		*Proposed*		*Actual maximum*		*Proposed*	
	Normal	*Maximum*	*Minimum*	*Left Bank Canal*	*Right Bank Canal*	*Left Bank Canal*	*Right Bank Canal*	*Left Bank Canal*	*Right Bank Canal*	*Left Bank Canal*	*Right Bank Canal*
1	2	3	4	5	6	7	8	9	10	11	12
	inches			*T.M.C.*							
June	1.5	4.1	Nil	0.07	0.08	Nil	Nil	0.15	0.37	—	—
July	2.0	4.3	0.9	0.22	0.09	,,	,,	0.45	0.41	—	—
August	4.0	6.1	0.7	0.22	0.11	0.43	0.22	0.45	0.50	0.89	0.99
September	4.5	7.5	1.1	0.20	0.09	0.45	0.23	0.43	0.42	0.96	1.07
October	3.5	13.4	0.1	0.26	0.15	0.40	0.20	0.54	0.68	0.82	0.90
November	1.8	5.8	Nil	0.26	0.14	0.36	0.18	0.55	0.65	0.77	0.84
December	0.2	1.6	,,	0.26	0.15	0.31	0.15	0.54	0.68	0.64	0.68
January	0.1	0.1	,,	0.20	0.16	0.11	0.05	0.41	0.72	0.23	0.25
February	0.3	0.3	,,	0.12	0.13	0.22	0.11	0.27	0.65	0.50	0.53
March	0.3	0.4	,,	0.19	0.11	0.22	0.11	0.39	0.50	0.45	0.50
April	0.8	3.9	,,	0.15	0.08	0.22	0.11	0.32	0.37	0.47	0.51
May	2.0	5.5	0.7	Nil	0.01	Nil	Nil	—	0.05	—	—
Total	**21.0**			**2.15**	**1.30**	**2.72**	**1.36**				
Total for both canals				**3.45**			**4.08**				

13. Not available

14. (a) **Characteristics of soils in the commanded area**

Shallow red and black cotton soils

(b) **Has any study been made of the likely effect of introduction of irrigation on soil characteristics ?**

No

15. **Pattern of cultivation in the area commanded before the scheme came into operation.**

Abi		*Tabi*						
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*					*Total area (T. acres)*	*Total cropped area (T. acres)*
Paddy		*Paddy*	*Jowar*	*Bajra*	*Ragi*	*Others*		
25.8	2.5	25.8	14.1	8.6	3.8	21.9	7.2	9.7

16. (a) **Proposed pattern of irrigated cultivation**

Abi		*Tabi*		
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	*Grand Total (T. acres)*
Paddy		*Paddy*		
70.6	12.0	29.4	5.0	17.0

(b) **Are there any rules for regulating crop pattern ?** No

17. **Actual crop pattern obtained after the introduction of irrigation**

Abi		*Tabi*		
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	*Grand Total (T. acres)*
Paddy		*Paddy*		
58.6	5.1	41.4	3.6	8.7

18. **Duty and Delta at canal head**

Abi : August to December

Tabi : January to April

As anticipated					*As obtained*		
Duty (acres per mean cusec)		*Delta (feet)*			*Delta (feet)*		
Abi	*Tabi*	*Abi*	*Tabi*	*Overall*	*Abi*	*Tabi*	*Overall*
55	40	5.6	5.3	5.5	10.4	7.3	9.2

19. (a) Number of tanks in operation in the irrigated area and the area irrigated therefrom

8 tanks and 4 spring channels with the Ayacut of 2,500 acres, merged with the Ayacut of the scheme

(b) Number of wells in operation in the irrigated area and the area irrigated therefr om

175 wells, area irrigated not available, merged with the Ayacut

20. Quantum of river supplies available in relation to withdrawals

River supply data not available

21. to 24. Not applicable

GENERAL

25. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects ; financial returns

Nil

26. Total cost of the scheme	Rs. 1,45 lakhs
27. Cost per acre irrigated	Rs. 1,211
28. Not applicable	
29. Financial return of the scheme	
(1) **as anticipated**	1.09 percent
(2) **as obtained**	Not available

30. Main features and purpose of the scheme

For conversion of dry cultivation to paddy

31. Special features of the scheme

Below this reservoir there are 22 spring channels irrigating 8,500 acres in Andhra Pradesh and 6 spring channels irrigating 1,575 acres in Mysore, for which supply has to be let down below the dam

MUSI PROJECT 5B-K.10-A.5

1. **Name of State** Andhra Pradesh (formerly in Hyderabad)
2. **Scope of the scheme or system**
   Irrigation scheme; flow-cum-storage; Ayacut 38,000 acres
3. **Source of supply**
   Musi/**Krishna**
   Utilisation upstream :
   existing : water supply to Hyderabad and Secunderabad and 20 anicuts irrigating about 14,300 acres;
   proposed : nil
4. **Description of the reservoir or tank**

Live storage	4.80 T.M.C.
Dead storage	0.25 ,,
Carry-over	1.19 ,,
Annual reservoir losses	1.10 ,,
Filling period	June to September
Depletion period	October to May
Catchment area	3,510 square miles
Area submerged	6,246 acres
Full reservoir level	R.L. 645
Minimum pond level	R.L. 610

5. **Description of the head-works**
   Dam : earthen, 13,020 feet long; composite, 823 feet long and gravity, 247 feet long; 70 feet high
   Outlets : twelve, 40 feet x 20 feet each,
   Regulator : 8 vents, 40 x 15 feet each
   Scour vents : ten 20 feet x 15 feet each, total capacity 375,090 cusecs
6. **Description of the canals**
   Right Flank Canal (contour); 19 miles long; two-seasonal; unlined; capacity **330 cusecs**
   Left Flank Canal (contour); 21 miles long; two-seasonal; unlined; capacity **330 cusecs**
7. **Date of beginning of construction** 1953-54
8. **Date of beginning of operation** 1957-58
9. **Probable date of beginning of full operation** 1965

IRRIGATION ASPECTS

10. Gross commanded area, culturable commanded area and Ayacut, district-wise

District Nalgonda

	Left Flank Canal	*Right Flank Canal*	*Total*
		thousand acres	
G.C.A.	34.5	31.2	**65.7**
C.C.A.	27.1	30.6	**57.7**
Ayacut	19.0	19.0	**38.0**

11. Area irrigated annually and intensity of irrigation

	Area irrigated annually	*Intensity of Irrigation on Ayacut*
(i) Proposed	52,600 acres	138.4 percent
(ii) Actual maximum	6,000 ,,	15.8 ,,

12. Normal rainfall and river supply diverted

Month	*Rainfall*			Left Flank Canal				Right Flank Canal			
				River supply diverted		*Capacity factor*		*River supply diverted*		*Capacity factor*	
	Normal	*Maximum*	*Minimum*	*Actual maximum*	*Proposed*	*Actual maximum*	*Proposed*	*Actual maximum*	*Proposed*	*Actual maximum*	*Proposed*
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*
	inches			*T.M.C.*				*T.M.C.*			
June	3.7	8.1	0.6	Nil	0.10	—	0.12	Nil	0.10	—	0.12
July	5.3	17.1	2.1	0.01	0.86	0.01	0.97	,,	0.86	—	0.97
August	4.1	12.9	1.2	0.04	0.81	0.05	0.92	,,	0.81	—	0.92
September	6.0	13.1	3.1	0.29	0.67	0.34	0.78	0.50	0.67	0.58	0.78
October	3.7	8.2	0.5	0.35	0.58	0.40	0.66	0.35	0.58	0.40	0.66
November	1.2	3.4	Nil	0.23	0.57	0.27	0.67	0.20	0.57	0.23	0.67
December	0.5	0.5	,,	0.10	0.07	0.11	0.08	0.16	0.07	0.18	0.08
January	Nil	Nil	,,	Nil	0.04	—	0.05	0.02	0.04	0.02	0.05
February	0.3	1.6	,,	,,	0.19	—	0.24	Nil	0.19	—	0.24
March	0.1	2.2	,,	,,	0.11	—	0.12	,,	0.11	—	0.12
April	0.8	4.0	,,	,,	0.13	—	0.15	,,	0.13	—	0.15
May	1.0	2.7	,,	,,	0.06	—	0.07	,,	0.06	—	0.07
Total	**26.7**			**1.02**	**4.19**			**1.23**	**4.19**		

Total for both canals — Actual maximum **2.25** T.M.C. ; Proposed **8.38** T.M.C.

13. Not available

14. (a) **Characteristics of soils in the commanded area**

Sandy loams 85 percent, clayey loams 15 percent

(b) **Has any study been made of the likely effect of the introduction of irrigation on soils characteristics ?**

No

15. **Pattern of cultivation in the area commanded before the scheme came into operation**

Kharif					*Land left fallow*		*Total cropped area (T. acres)*
Percentage of principal crops				*Total area (T. acres)*	*Percentage*	*Total area (T. acres)*	
Bajra	*Jowar*	*Groundnut*	*Paddy*				
20.8	37.1	14.5	14.1	49.9	13.5	7.8	57.7

16. (a) **Proposed pattern of irrigated cultivation**

Abi		*Rabi*			
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	*Grand Total (T. acres)*
Paddy		*Paddy*	*Green manure*		
72.2	38.0	7.2	20.6	14.6	52.6

(b) **Are there any rules for regulating crop pattern ?** No

17. **Actual crop pattern obtained after the introduction of irrigation**

Abi	
Percentage of principal crops	*Total area (T. acres)*
Paddy	
100.0	6.0

18. **Duty and Delta at canal head**

As anticipated							*As obtained*
Duty (acres per mean cusec)			*Delta (feet)*				*Delta (feet)*
Kharif (Abi) Paddy	*Rabi (Tabi) Paddy*	*Green manure*	*Kharif (Abi) Paddy*	*Rabi (Tabi) Paddy*	*Green manure*	*Overall*	*Kharif (Abi)*
72	40	216	5.1	7.1	0.6	3.7	8.8

19. (a) **Number of tanks in operation in the irrigated area and the area irrigated therefrom**

126 tanks, irrigating 5,177 acres, not included the Ayacut

(b) Not available

20. Quantum of river supplies available in relation to withdrawals

River supply data not available

21. to 24. Not applicable

GENERAL

25. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Nil

26. Total cost of the scheme Rs. 2,50 lakhs (revised)

27. Cost per acre irrigated Rs. 475

28. Not applicable

29. Financial return of the scheme

(i) as anticipated 2.47 percent

(ii) as obtained varies from 1.67 percent to 3.57 percent

30. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated Paddy

RADHANAGARI PROJECT 6B-K.1-M.1

1. **Name of State** Maharashtra (formerly in Bombay)
2. **Scope of the scheme or system**

Multipurpose; flow-cum-storage; power, 4 units of 1,200 k.W. each; the tail race waters discharge into the river and are diverted for irrigation by lift from above Kolhapur type weirs. The lifts involved range from 100 feet to 120 feet. The lifts in the Bhogavati Valley are mostly private; in the Panchganga Valley, Government managed.

3. **Source of supply**

Bhogawati/Panchganga/**Krishna**

Utilisation upstream:

existing : nil

proposed : a subsidiary storage to augment supplies to the Radhanagari storage (see **30C.3-K.1-M.15**)

4. **Description of the reservoir or tank**

Live storage	6.0 T.M.C.
Dead storage	0.3 ,,
Carry-over	2.0 ,,
Annual reservoir losses	0.6 ,,
Filling period	15th June to end of September
Depletion period	15th June to 14th June
Catchment Area	42.5 square miles
Area submerged	4,288 acres
Full reservoir level	R.L. 1,939
Minimum pond level	R.L. 1,857

5. **Description of the head-works**

Dam : masonry, 3,750 feet long, 126 feet high.

Spillway : seven gates, 47 feet 6 inches × 3 feet each, total capacity 18,000 cusecs, and 10,000 cusecs by open weir, 350 feet long

Outlets : under sluices, five, 8 feet × 8 feet 9 inches each, total capacity 30,000 cusecs ; two, seven feet diameter penstocks, capacity 700 cusecs

6. Not applicable
7. **Date beginning construction** 1940
8. **Date of beginning of operation**

Irrigation 1951-52 ;

Power 1953-54

9. **Probable date of beginning of full operation** In full operation since 1953

IRRIGATION ASPECTS

10. Gross commanded area and culturable commanded area, district-wise

No direct irrigation (irrigation by private and Government lift schemes). The area is scattered along the river banks in Kolhapur district and G.C.A. and C.C.A. are not available

11. Area irrigated annually and intensity of irrigation *(See Annexure I)*

	Area irrigated annually
(i) Proposed	Not available
(ii) Actual maximum during 7 years	19,700 acres

12. Normal rainfall and river supply diverted

Month	*Rainfall*			*River supply diverted*	*Capacity factor*
	Normal	*Maximum*	*Minimum*		
1	2	3	4	5	6
	inches			*T.M.C.*	
June	6.0	14.6	1.2		
July	13.4	35.9	2.1		
August	7.4	22.1	1.2		
September	4.4	30.8	0.3		
October	4.5	20.3	0.2	Not available	Not available
November	1.4	14.9	Nil		
December	0.2	3.8	,,		
January	0.1	2.2	,,		
February	Nil	0.8	,,		
March	0.2	2.8	,,		
April	1 0	6.7	,,		
May	2.0	6.3	,,		
Total	**40.6**			**6.5***	

Assumed

13. Not available

14. (a) Characteristics of soils in the commanded area

Sandy to sandy loam 20 percent ; silty loam to clay loam 20 percent and clay loam to clay 60 percent. Depth of soil is more than 18 inches

(b) Has any study been made of the likely effect of introduction of irrigation on soil characteristics ?

No

15. Pattern of cultivation in the area commanded before the scheme came into operation

Perennial			*Kharif*				*Rabi*			*Total cropped area (T. acres)*
Percentage of principal crops		*Total area (T. acres)*	*Percentage of principal crops*			*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	
Sugarcane	*Others*		*Paddy*	*Others*	*Groundnut*		*Wheat*	*Others*		
				Taluka Radhanagari						
10.3	21.6	20.2	36.1	25.0	3.9	41.3	2.0	1.1	2.0	63.5
				Taluka Karvir						
11.9	21.9	37.2	25.5	21.9	9.2	63.3	6.4	2.2	9.5	110.0

Note : figures given above are for the taluka as a whole

16. (a) Proposed pattern of irrigated cultivation None

(b) Are there any rules for regulating crop pattern ? No

17. Actual crop pattern obtained after the introduction of irrigation *(See Annexure 1*

Perennial		*Kharif*			*Rabi*		*Hot weather*		*Grand Total (T. acres)*
Percentage of principal crops	*Total area (T.acres)*	*Percentage of principal crops*		*Total area (T.acres)*	*Percentage of principal crops*	*Total area (T.acres)*	*Percentage of principal crops*	*Total area (T.acres)*	
Sugarcane		*Paddy*	*Others*		*Wheat*		*Others*		
93.4	18.4	3.6	0.5	0.8	1.0	0.2	1.5	0.3	19.7

18. Duty and Delta at canal head

Particulars not available. For sugarcane, the delta should be about 8.0 feet and for the rest about 1.0 feet

19. (a) Number of tanks in operation in the irrigated area and the area irrigated therefrom

Nil

(b) Not available

20. Quantum of river supplies available in relation to withdrawals

See item 24 below

POWER ASPECTS

21. River supplies diverted and operation head

Month	*Actual maximum*			*As proposed*		
	Range of operation head (feet)		*Supply passing through turbines (cusecs)*	*Range of operation head (feet)*		*Supply passing through turbines (cusecs)*
	from	*to*		*from*	*to*	
June	77.7	85.1	304	77.7	85.1	286
July	84.4	111.4	468	84.4	111.4	253
August	111.7	116.9	478	111.7	116.9	272
September	116.7	116.3	509	116.7	116.3	285
October	116.4	115.6	250	116.4	115.6	200
November	115.6	112.8	196	115.6	112.8	195
December	112.7	104.6	210	112.7	104.6	234
January	107.9	103.8	201	107.9	103.8	218
February	103.7	99.0	280	103.7	99.0	221
March	98.8	92.5	338	98.8	92.5	258
April	92.3	85.4	372	92.3	85.4	241
May	84.2	77.9	350	84.2	77.9	227
Total			10.42 T.MC			**7.60** T.M.C.

22. Disposal of tail-race waters

Tail race water is let down into the river and except for the monsoon period, is fully diverted for irrigation of sugarcane at the following Kolhapur type weirs :

On Bhogawati

1. Tarale
2. Shirgaon
3. Rashiwade
4. Koge
5. Hardi

On Panchanganga

6. Rajaram
7. Surve
8. Rui
9. Terwali
10. Shinot

Particulars of monthwise divertion are not available

23. Development of load compared with power potential provided

Year	*Power load at 0.4 L.F. (k.W.)*	*Power produced in k.W. at 0.4 L.F.*	*Percentage of* $\frac{\text{Col. 3}}{\text{Col. 2}}$
1956	3,750	2,666.48	71.1
1957	3,750	4,061.70	108.3
1958	3,750	4,570.00	121.9
1959	3,750	4,650.55	124.0
1960	3,750	4,007.15	106.9

24. Quantum of river supplies available in relation to withdrawals

River supplies available are in excess of requirements of this project

GENERAL

25. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Water supply to Kolhapur town 0.4 T.M.C.

26. Total cost of the scheme Rs. 1,70 lakhs (estimated)

27. Not available

28. Cost per k.W. power produced Rs. 3,542

29. Not available

30. Main features and purpose of the scheme

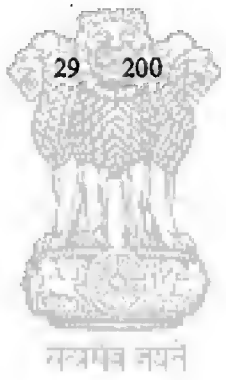
Sugarcane cultivation of about 18,000 acres and electricity for Kolhapur

RADHANAGARI PROJECT

STATEMENT SHOWING AREA IRRIGATED BY CROPS

Annexure I

Year	*Area irrigated by crops (acres)*						*Grand Total*
	Perennial	*Kharif*			*Rabi*	*Hot Weather*	
	Sugarcane	*Paddy*	*Others*	*Total*	*Wheat*	*Others*	
	Project put into commission in 1952, figures for the years 1951-52 to 1953-54 not available						
1954-55	9,900	Nil	Nil	Nil	2,100	Nil	**12,000**
55-56	12,300	,,	,,	,,	1,400	,,	**13,700**
1956-57	12,500	,,	,,	,,	500	,,	**13,000**
57-58	12,700	,,	,,	,,	100	,,	**12,800**
58-59	14,000	,,	,,	,,	1,500	,,	**15,500**
59-60	12,600	500	100	600	200	200	**13,600**
60-61	18,400	700	100	800	200	300	**19,700**
Average for the 7 Years 1954-55 to 1960-61	13,200	171	29	200	857	71	**14,328**



GHOD DAM PROJECT 7 B-K.5-M. 2

1. **Name of State** Maharashtra (formerly in Bombay)
2. **Scope of the scheme or system**
   Irrigation scheme ; flow-cum-storage ; C.C.A. 103,600 acres
3. **Source of supply**
   Ghod at Chinchani/Bhima/**Krishna**
   Utilisation upstream : minor irrigation works diverting about 1.32 T.M.C.
4. **Description of reservoir or tank**

Live storage	6.03 T.M.C.
Dead storage	1.61 ,,
Carry-over	1.00 ,,
Annual reservoir losses	2.02 ,,
Filling period	15th June to 30th September
Depletion period	15th June to 14th June
Catchment area	1,401 square miles
Area submerged	8,800 acres
Full reservoir level	R.L. 1,800
Minimum pond level	R.L. 1,770

5. **Description of the head-works**
   Dam : earthen, 8,738 feet long, 94 feet high
   Spillway : 30 radial gates, each 30 feet × 20 feet, total capacity 262,000 cusecs
   Outlets : two vents, each 5 feet × 5 feet, total capacity 492 cusecs and three vents, each 6.5 feet × 6.5 feet, total capacity 1,390 cusecs
6. **Description of the canals**
   Ghod Right Bank Canal (contour) ; 19 miles long ; perennial ; unlined ; authorised capacity **180 cusecs**
   Ghod Left Bank Canal (contour) ; 54 miles long ; perennial ; unlined ; authorised capacity **500 cusecs**
7. **Date of beginning of construction** 1954
8. **Date of beginning of operation**
   A part of Left Bank Canal was put into operation in July, 1958
9. **Probable date of beginning of full operation** October 1962

IRRIGATION ASPECTS

10. Gross commanded area and culturable commanded area, district-wise

Item	*Names of districts*		*Total*
	Poona	*Ahemdnagar*	
	thousand acres		
	Right Bank Canal	Left Bank Canal	
G.C.A.	34.5	96.4	**130.9**
C.C.A.	28.9	74.7	**103.6**

11. Area irrigated annually and intensity of irrigation (*See Annexure I*)

	Area irrigated annually		*Intensity of irrigation*	
(i) Proposed Right Bank Canal	17,600	acres	60.9	percent
Left Bank Canal	44,800	,,	60.0	,,
(ii) Actual maximum				
Left Bank Canal	15,100	,,	20.2	,,

12. Normal rainfall and river supply diverted

Month	*Rainfall*			*River supply diverted**				*Capacity factor*		
					Proposed				*Psoposed*	
	Normal	*Maximum*	*Minimum*	*Actual Maximum*	*Right Bank Canal*	*Left Bank Canal*	*Total*	*Actual Maximum*	*Right Bank Canal*	*Left Bank Canal*
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*
	inches			*thousand million cubic feet (T.M.C.)*						
June	3.7	10.9	0.1	(from 15th June to 14th October,						
July	2.5	9.6	0.3							
August	2.0	10.9	0.2	0.12	0.91	2.95	**3.86**	0.02	0.48	0.56
September	5.5	13.9	Nil							
October	2.7	9.4	,,	(from 15th October to 14th February)						
November	1.1	9.9	,,							
December	0.3	4.3	,,	0.59	0.95	2.41	**3.36**	0.11	0.50	0.45
January	0.1	2.5	,,							
February	0.1	0.7	,,	(from 15th February to 14th June)						
March	0.1	1.8	,,	Nil	0.35	0.86	**1.21**	Nil	0.19	0.17
April	0.4	8.0	,,							
May	0.9	4.5	,,							
Total	**19.4**			**0.71**	**2.21**	**6.22**	**8.43**			

* *Data for actual canal withdrawals not available*

13. Not available

14. **Characteristics of soils in the commanded area**

	Right Bank Canal	Left Bank Canal
Sandy to sandy loam	40 percent	41 percent
Silty loam to clayey loam	30 ,,	31 ,,
Clayey loam to clay	30 ,,	28 ,,

(b) **Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?**

Yes. Indiscriminate localisation of sugarcane is likely to lead to water-logging. If after completing the drainage classification of soils, the perennial irrigation is localised to suitable areas having good natural drainage, there would be no detrimental effect.

15. **Pattern of cultivation in the area commanded before the scheme came into operation**

Two seasonals			*Kharif*			*Rabi*				
Percentage of principal crops		*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	*Percentage of principal crops*			*Total area (T. acres)*	*Total cropped area (T. acres)*
Cotton	*Oilseeds*		*Bajri*	*Others*		*Jower*	*Pulses*	*Wheat*		
1.0	5.0	**6.2**	4.0	5.5	**9.8**	76.5	7.0	1.0	**87.6**	**103.6**

16. **Proposed pattern of irrigated cultivation**

Perennial		*Two seasonals*		*Kharif*		*Rabi*			*Grand Total (T. acres)*
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	
Sugarcane		*Cotton*		*Cereal*		*Wheat*	*Jowar*		
(Right Bank Canal)									
9.2	**1.6**	22.7	**4.0**	39.7	**7.0**	5.0	23.4	**5.0**	**17.6**
(Left Bank Canal)									
10.7	**4.8**	22.3	**10.0**	40.2	**18.0**	5.0	21.8	**12.0**	**44.8**

(b) **Are there any rules for regulating crop pattern ?**

No; but crop pattern will be regulated by contract provisions

17. Actual crop pattern obtained after the introduction of irrigation*

irrigation just started and not fully developed

Two seasonals			*Kharif*			*Rabi*			
Percentage of principal crops		*Total area (T.acres)*	*Percentage of principal crops*		*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	*Grand Total (T. acres)*
Cotton	*Others*		*Bajri*	*Others*		*Wheat*	*Jowar*		
4.0	0.8	**0.6**	7.3	1.6	**1.1**	5.6	80.7	**10.7**	**12.4**

**During 1960-61 (year of maximum river supply diverted)*

18. Duty and Delta at canal head

Kharif—15th June to 14th October

Rabi —15th October to 14th February

Hot weather—15th February to 14th June

	As anticipated												*As obtained*
	Duty (acres per mean cusec)						*Delta (feet)*						
	Kharif		*Rabi*		*Hot weather*		*Kharif*		*Rabi*		*Hot weather*		*Overall Delta (feet)*
	Right Bank	*Left Bank*	*Right Bank*	*Left Bank*	*Right Bank*	*Left Bank*	*Right Bank*	*Left Bank*	*Right Bank*	*Left Bank*	*Right Bank*	*Left Bank*	
Sugarcane	65	65	70	70	50	50	3.9	4.3	3.7	4.0	5.0	5.5	
Two seasonals	130	130	140	140	—	—	1.9	2.2	1.8	2.0	—	—	
Kharif	195	195	—	—	—	—	1.3	1.4	—	—	—	—	
Rabi	—	—	210	210	—	—	—	—	1.2	1.3	—	—	

Right Bank Canal (overall delta) — 2.9 feet

Left Bank Canal (overall delta) — 3.2 feet

} 1.3

19. (a) Number of tanks in operation in the irrigated area and the area irrigated therefrom

Nil

(b) Number of wells in operation in the irrigated area and the area irrigated therefrom

510 wells in the commanded area, each irrigating about 2 to 3 acres of seasonal crops, area included in C.C.A.

20. Quantum of river supplies available in relation to withdrawals

River supply much is excess of requirements of this scheme

21. to 24. Not applicable

GENERAL

25. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects ; financial returns

Nil

26.	**Total cost of the scheme**	Rs. 4,99 lakhs
27.	**Cost per acre irrigated**	Rs. 673
28.	Not applicable	
29.	**Financial return of the scheme**	
	(i) **as anticipated**	2.29 percent
	(ii) **as obtained**	Not available

30. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture

GHOD DAM PROJECT

STATEMENT SHOWING AREA IRRIGATED BY CROPS

Annexure I

Year	Area irrigated by crops (acres)										Grand Total
	Two seasonals			Kharif			Rabi				
	Cotton	Others	otal	Bajri	Others	Total	Wheat	Jowar	Others	Total	
1958-59	—	—	—	—	—	—	—	2,700	—	2,700	2,700
59-60	—	—	—	—	100	100	300	14,400	300	15,000	15,100
60-61	500	100	600	900	200	1,100	700	10,000	—	10,700	12,400
Average for the period 1958-59 to 1960-61	167	33	200	300	100	400	333	9,034	100	9,467	10,067

Note : (*i*) *Irrigation on Ghod Left Bank Canal started in 1958-59*

(*ii*) *No irrigation yet on Ghod Right Bank Canal*

BUDHIAL TANK

8B-K. 5-M. 3

1. **Name of State** Maharashtra (formerly in Bombay)
2. **Scope of the scheme or system**
   Irrigation scheme ; flow-cum-storage ; C.C.A. 13,620 acres
3. **Source of supply**
   Belvan Nalla near Budhial/Man/Bhima/**Krishna**
   Utilisation upstream : nil
4. **Description of the reservoir or tank**

Live Storage	1.1 T.M.C.
Carry-over	Nil
Annual reservoir losses	0.1 T.M.C.
Filling period	Middle of June to end of September
Depletion period	Middle of October to middle of February
Catchment Area	141 square miles
Area submerged	1,570 acres
Full reservoir level	R.L. 1,743
Minimum pond level	R.L. 1,710

5. **Description of the head-works**
   Dam : earthen, 8,400 feet long, 61 feet high
   Spillway : 1,350 feet long, capacity 83,000 cusecs
   Outlet : capacity 200 cusecs
6. **Description of the canal**
   Budhial Canal (contour) ; left bank ; 16.5 miles long ; one-seasonal ; unlined ; authorised capacity **162 cusecs**
7. **Date of beginning of construction**
   Started in 1899 as famine relief work, re-started in 1953
8. **Date of beginning of operation** 1957-58
9. **Probable date of beginning of full operation** June 1963

IRRIGATION ASPECTS

10. **Gross commanded area and culturable commanded area, district-wise**

District	Sholapur
G.C.A.	13,900 acres
C.C.A.	13,600 ,,

11. Area irrigated annually and intensity of irrigation

	Area irrigated annually	*Intensity of irrigation*
(i) Proposed	10,500 acres	77.2 precent
(ii) Actual maximum	7,000 ,,	51.5 ,,

12. Normal rainfall and river supply diverted

Month	*Rainfall*			*River supply diverted*		*Capacity factor*	
	Normal	*Maximum*	*Minimum*	*Actual Maximum*	*Proposed*	*Actual Maximum*	*Proposed*
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
	.....*inches*.....			.....*T.M.C*.....			
June	2.9	9.3	0.1	0.09			
July	2.4	10.8	0.1	0.06			
August	2.2	16.8	Nil	0.05	15th June to 14th October		
September	5.7	17.3	0.6	0.01	Nil	0.10	—
October	3.3	9.4	0.1	Nil			
November	1.2	10.7	Nil	0.01			
December	0.3	6.3	,,	0.07	15th October to 14th February		
January	0.1	1.6	,,	0.06	0.80	0.08	0.46
February	0.1	1.7	,,	Nil			
March	0.2	1.8	,,	0.15	15th February to 14th June		—
April	Nil	2.2	,,	0.15	Nil	0.25	
May	0.1	5.6	,,	0.08			
Total	**18.5**			**0.73**	**0.80**		

13. Not available

14. (a) Characteristics of soils in the commanded area

Sandy to sandy loam 30 percent, sandy loam to clayey 40 percent and clayey to clay 30 percent

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

15. Pattern of cultivation in the area commanded before the scheme came into operation

Perennial		*Two seasonal*			*Kharif*				*Rabi*				*Total*
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	*Percentage of principal crops*			*Total area (T. acres)*	*Percentage of principal crops*			*Total area (T. acres)*	*cropped area (T. acres)*
Sugarcane		*Cotton*	*Others*		*Paddy*	*Bajri*	*Others*		*Jowar*	*Wheat*	*Others*		
0.2	—	1.5	2.3	**0.5**	0.3	28.2	9.5	**5.1**	52.0	1.7	4.3	**7.8**	**13.4**

16. (a) Proposed pattern of irrigated cultivation

Rabi	
Percentage of principal crops	*Total area (T. acres)*
Seasonals	
100.0	**10.5**

(b) Are there any rules for regulating crops pattern ? No

17. Actual crop pattern obtained after the introduction of irrigation

Two seasonal		*Kharif*		*Rabi*			*Hot weather*		
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	*Grand Total (T. acres)*
Others		*Others*		*Wheat*	*Jowar*		*Others*		
4.3	**0.3**	68.6	**4.8**	1.4	21.4	**1.6**	4.3	**0.3**	**7.0**

18. Duty and Delta at canal head

Rabi—15th October to 14th February

As anticipated		*As obtained*
Duty (acres per mean cusec)	*Delta (feet)*	*Overall Delta (feet)*
Rabi	*Rabi*	
140	1.7	2.4

19. (a) Number of tanks in operation in the irrigated area and the area irrigated therefrom

Nil

(b) Number of wells in operation in the irrigated area and the area irrigated therefrom

194 wells, area irrigated included in C.C.A.

20. Quantum of river supplies available in relation to withdrawals

River supply data not available

21. to 24. Not applicable

GENERAL

25. **Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects ; financial returns**

Nil

26. **Total cost of the scheme** Rs. 63 lakhs

27. **Cost per acre irrigated** Rs. 600

28. Not applicable

29. **Financial return of the scheme**

(i) **as anticipated** 1.7 percent

(ii) **as obtained** Not available

30. **Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture

MANGI TANK

9B-K. 5-M. 4

1. **Name of State** Maharashtra (formerly in Bombay)
2. **Scope of the scheme or system**
   Irrigation scheme ; flow-cum storage ; C.C.A, 10,000 acres
3. **Source of supply**
   Kanola nalla at Mangi/Sina/Bhima/**Krishna**
   Utilisation upstream :
   existing : nil
   proposed : nil
4. **Description of the reservoir of tank**

Live storage	1.2 T.M.C.
Carry-over	0.6 ,,
Annual reservoir losses	0.2 ,,
Filling period	15th June to end of September
Depletion period	15th October to 14th February
Catchment area	118 square miles
Area submerged	960 acres
Full reservoir level	R.L. 1,766
Minimum pond level	R.L. 1,724

5. **Description of the head-works**
   Dam : earthen, 4,838 feet long, 75 feet high
   Spillway : 800 feet long, capacity 79,000 cusecs
   Outlets : two 5 feet × 4 feet, total capacity 140 cusecs and one, 5 feet × 4 feet, capacity 70 cusecs
6. **Description of the canals**
   Right Bank Canal (contour) ; 18 miles long ; two seasonal ; unlined ; authorised capacity **110 cusecs**
   Left Bank Canal (contour) ; 6 miles long ; two-seasonal ; unlined ; authorised capacity **30 cusecs**
7. **Date of beginning of construction**
   Commenced in 1921, left incomplete till 1953, when work was re-started
8. **Date of beginning of operation**

Right Bank Canal	15th October, 1957
Left Bank Canal	8th April, 1960

9. **Probable date of beginning of full operation** October 1962

IRRIGATING ASPECTS

10. Gross commanded area and culturable commanded area, district-wise (both canals)

District	Sholapur
G.C.A.	11,400 acres
C.C.A.	10,000 ,,

11. Area irrigated annually and intensity of irrigation

	Area irrigated annually	Intensity of irrigation
1. Proposed	9,700 acres	97.0 percent
2. Actual maximum	3,600 ,,	36.0 ,,

12. Normal rainfall and river supply diverted

Month	*Rainfall*			*River supply diverted*		*Capacity factor*	
	Normal	*Maximum*	*Minimum*	*Actual maximum*	*Proposed*	*Actual maximum*	*Proposed*
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
	Inches			*T. M. C.*			
June	4.0	18.9	0.1	0.01	15th June to 14th Oct.		
July	3.4	15.0	0.1	0.02			
August	3.0	11.5	Nil	0.01	0.32	0.03	0.21
September	6.7	19.0	0.4	0.02			
October	2.7	22.8	Nil	0.03	15th Oct. to 14th Feb.		
November	1.0	7.9	,,	0.03			
December	0.2	6.0	,,	0.03	0.60	0.06	0.41
January	0.2	2.9	,,	0.04			
February	0.1	1.6	,,	0.06	15th Feb. to 14th June		
March	0.2	1.9	,,	0.07			
April	0.4	1.8	,,	0.05	Nil	0.03	—
May	0.7	3.7	,,	0.03			
Total	22.6			0.40	0.92		

13. Not available

14. (a) Characteristics of soils in the commanded area

Sandy loam 35 percent, silt loam to clay loam 35 percent and clay loam to clay 30 percent

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

15. Pattern of cultivation in the area commanded before the scheme came into operation

Kharif		*Rabi*			*Total cropped area (T. acres)*
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	
Others		*Jowar*	*Others*		
27.0	2.7	62.0	11.0	7.3	10.0

16. (a) Proposed pattern of irrigated cultivation

Two seasonal		*Rabi*		*Grand Total (T. acres)*
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	
Others		*Jowar*		
40.2	3.9	59.8	5.8	9.7

(b) Are there any rules for regulating crop pattern ? No

17. Actual crop pattern obtained after the introduction of irrigation*

Two seasonal			*Kharif*		*Rabi*			
Percentage of principal crops		*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	*Grand Total (T. acres)*
Cotton	*Others*		*Others*		*Wheat*	*Jowar*		
17.6	5.9	0.4	5.9	0.1	5.9	64.7	1.2	1.7

* *During 1959-60 year of maximum river supply diverted, complete data for 1960-61 not available*

18. Duty and Delta at canal head

	As anticipated		*As obtained*
	Duty (acres per mean cusec)	*Delta (feet)*	*Delta (feet)*
Overall	225	2.2	5.4

19. (a) Number of tanks in operation in the irrigated area and the area irrigated therefrom

Nil

(b) Number of wells in operation in the irrigated area and the area irrigated therefrom

77 wells, irrigating about 230 acres of seasonal crops, included in C.C.A.

20. Quantum of river supplies available in relation to withdrawals

River supply data not available

21. to 24. Not applicable

GENERAL

25. **Aspects other than irrigation and power ; water supply (month-wise), if any required for these aspects ; financial returns**

Nil

26. **Total cost of the scheme** Rs. 59 lakhs

27. **Cost per acre irrigated** Rs. 766

28. Not applicable

29. **Financial return of scheme**

(i) as anticipated Nil

(ii) as obtained Not available

30. **Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture

KHASAPUR TANK

10B-K.5-M. 5

1. **Name of State** — Maharashtra (formerly in Hydrabad)
2. **Scope of the scheme or system**
   Irrigation scheme ; flow-cum-storage ; C.C.A. 13,500 acres
3. **Source of supply**
   Dunda nalla at Khasapur/Sina/Bhima/**Krishna**
   Utilisation upstream : nil
4. **Description of the reservoir or tank**

Live storage	0.6 T.M.C.
Dead storage	0.1 ,,
Carry-over	0.1 ,,
Annual reservoir losses	0.3 ,,
Filling period	15th June to 30th September
Depletion period	15th June to 14th February
Catchment area	214 square miles
Area submerged	1,300 acres
Full reservoir level	R.L. 1,677
Minimum pond level	R.L. 1,660

5. **Description of the head-works**
   Dam : earthen, 5,020 feet long, 56 feet high
   Spillway : capacity 35,800 cusecs
   Head regulators : right bank, two vents, one feet diameter
   left bank, two vents, 2 foot x 2½ foot each
6. **Description of the canals**
   Right Bank Canal (contour) ; 11 miles long, two-seasonal ; unlined ; authorised capacity **32 cusecs**
   Left Bank Canal (contour) ; 9 miles long ; two-seasonal ; unlined ; authorised capacity **32 cusecs**
7. **Date of beginning of construction** — 1949
8. **Date of beginning of operation** — 1954-55
9. **Probable date of beginning of full operation** — October 1962

IRRIGATION ASPECTS

10. **Gross commanded area and culturable commanded area, district-wise**

District	Osmanabad		
	Right Bank Canal	*Left Bank Canal*	*Total*
	thousand acres		
G.C-A.	9.5	5.5	**15.0**
C.C.A.	8.5	5.0	**13.5**

11. Area irrigated annually and intensity of irrigation

	Area irrigated annually		*Intensity of irrigation*	
(i) Proposed	10,400	acres	77.0	percent
(ii) Actual maximum	7,700	,,	57.0	,,

12. Normal rainfall and river supply diverted

Month	*Rainfall*			*River supply diverted*		*Capacity factor*	
	Normal	*Maximum*	*Minimum*	*Actual* Maximum*	*Proposed*	*Actual maximum*	*Proposed*
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
	inches			*T.M.C.*			
June	4.1	12.5	0.4	0.06			
July	4.1	13.8	0.1	0.09	15th June to 14th October		
August	3.8	11.0	0.1	0.05		0.36	0.81
September	7.0	18.8	0.4	0.05	0.55		
October	3.1	7.6	Nil	0.03			
November	1.0	6.7	,,	0.10	15th October to 14th February		
December	0.2	3.0	,,	0.17		0.54	0.66
January	0.2	1.8	,,	0.09	0.45		
February	0.1	1.0	,,	Nil	15th February to 14th June		
March	0.2	1.0	,,	,,	Nil	0.17	
April	0.4	1.2	,,	0.03			
May	0.8	7.8	,,	0.05			
Total	**25.0**			**0.72**	**1.00**		

**Data for actual canal withdrawals not available*

13. Not available

14. (a) Characteristics of soils in the commanded area

Sandy to sandy loam 30 percent, silty loam to clay loam 40 percent, and clay loam to clay 30 percent.

(b) Has any study been made of the likely effect of introduction of irrigation on soil characteristics ?

No

15. Pattern of cultivation in the area commanded before the scheme came int operation

Perennial			*Kharif*					*Rabi*				
Percentage of principal crops		*Total area (*	*Percentage of principal crops*				*Total area (T.*	*Percentage of principal crops*			*Total area (T.*	*Total cropped area (T. acres)*
Cotton	*Others*	*acres)*	*Paddy*	*Bajri.*	*Groundnut*	*Pulses*	*acres)*	*Wheat*	*Jowar*	*Pulses*	*acres)*	
2.0	5.4	1.0	3.0	1.5	5.0	13.5	3.1	4.5	61.0	4.1	9.4	13.5

16. (a) Proposed pattern of irrigated cultivation

Two seasonal		*Kharif*		*Rabi*		
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*	*Total ares (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	*Grand Total (T. acres)*
Others		*Others*		*Jowar*		
41.4	4.3	37.5	3.9	21.1	2.2	10.4

(b) Are there any rules for regulating crop pattern ? No

17. Actual crop pattern obtained after the introduction of irrigation

Two seasonal			*Kharif*		*Rabi*				
Percentage of principal crops		*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	*Percentage of principal crops*			*Total area (T. acres)*	*Grand Total (T. acres)*
Cotton	*Others*		*Others*		*Jowar*	*Wheat*	*Gram*		
4.4	2.4	0.5	7.1	0.5	63.7	5.7	16.7	6.7	7.7

18. Duty and Delta at canal head

Kharif— 15th June to 14th October

Rabi— 15th October to 14th February

Hot weather— 15th February to 14 May

As anticipated		*As obtained*				
Duty (acres per mean cusec)	*Delta (feet)*	*Delta (feet)*				
Overall	*Overall*	*Kharif*	*Rabi*	*Hot weather*	*Overall*	
222	2.2	3.4	1.1	4.6	2.1	

19. (a) Number of tanks in operation in the irrigated area and the area irrigated therefrom

Nil

(b) Number of wells in operation in the irrigated area and the area irrigated therefrom

126 wells, irrigating 2 to 3 acres each, included in C.C.A.

20. Quantum of river supplies available in relation to withdrawals

River supply data not available

21. to 24. Not applicable

GENERAL

25. **Aspects other than irrigation and power water supply ; (month-wise), if any, required for these aspects; financial returns**

Nil

26. **Total cost of the scheme** Rs. 51 lakhs

27. **Cost per acre irrigated** Rs. 493

28. Not applicable

29. **Financial return of the scheme**

(i) **as anticipated** 0.34 percent

(ii) **as obtained** Not available

30. **Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture

GHATAPRABHA PROJECT (STAGES I AND II) 11B-K. 3-My.1

1. **Name of State** Mysore (formerly in Bombay)
2. **Scope of the scheme or system**

Irrigation scheme; flow-cum-storage; Ayacut 298,000 acres ; merges into it the Gokak Canals **(19A-K-3-My.1)**

3. **Source of supply**

[i] Ghataprabha at Hidkal* [ii] Ghataprabha at Dhupdal/**Krishna**

No existing diversion upstream of Hidkal reservoir, except two small lift irrigation schemes, Kolchi weir and Gotur weir on Hiranyakeshi/Ghataprabha, diverting about 1.85 T.M.C. and irrigating about 3,554 acres in Mysore and 4,612 acres in Maharashtra.

4. **Description of the dam and reservoir or tank**

Live storage	20. 2 T.M.C.
Dead storage	3.1 ,,
Carry-over	Nil
Annual reservoir losses	1.85 T.M.C.
Filling period	July to September
Depletion period	Full year
Catchment area	545 square miles
Area submerged	14, 237 acres
Full reservoir level	R.L. 2,133
Minimum pond level	R.L. 2,071
Dam at Hidkal	13,900 feet long, 143 feet high
Spillway:	620 feet long, capacity 163,000 cusecs
River sluices :	six, 6 feet x 9 feet each, total capacity 24,000 cusecs
Head regulator :	right bank, 6 vents, 8 feet x 9 feet each

5. **Description of the head-works**

Weir at Dhupdal as in **19A-K. 3-My. 1**

6. **Description of the canal**

Ghataprabha Left Bank Canal off taking Dhupdal weir (partly contour and partly ridge) ; 71 miles long (branches 78. 9 miles) ; perennial ; unlined ; capacity **2,000 cusecs**

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* *Originally, two storages were proposed : one on the Ghataprabha at Hadalga and the other on the Hiranyakeshi at Ajra. Preliminery works for the dam at Hadalga was taken up in 1956 by the Bombay Government. After re-organisation of States, it was decided to construct the dam at Hidkal presumably because both Hadalga and Ajra lie in Maharashtra*

7. Date of beginning of construction Ist stage, started in 1949

8. Date of beginning of operation

First 9 miles of Left Bank Canal were commissioned in June 1951 ; length of the main canal so far completed and in operation is 64 miles ; the dam is under construction.

9. Probable date of beginning of full operation

Left Bank Canal, by the end of III Five Year Plan.

IRRIGATION ASPECTS

10. Gross commanded area, culturable commanded area and Ayacut, district-wise

Item	*Names of districts*		*Total*
	Belgaum	*Bijapur*	
	thousand acres		
G. C. A.	181.4	264.4	**445.8**
C. C. A.	145.0	211.6	**356.6**
Ayacut	111.4	186.6	**298.0**

11. Area irrigated annually and intensity of irrigation

	Area irrigated annually	*Intensity of irrigation on Ayacut*
(i) Proposed	298,000 acres	100.0 percent
(ii) Actual maximum	56,400 ,,	18.9 ,,

12 Normal rainfall and river supply diverted

Month	*Rainfall*			*River supply diverted*		*Capacity factor*	
	Normal	*Maximum*	*Minimum*	*Actual maximum*	*Proposed*	*Actual maximum*	*Proposed*
1	2	3	4	5	6	7	8
	inches			*T.M.C.*			
June	2.4	5.0	0.7	1.25	2.50	0.24	0.48
July	2.9	5.7	1.1	2.34	4.10	0.44	0.77
August	2.3	8.5	0.3	2.53	4.10	0.47	0.77
September	4.3	9.6	0.4	1.35	4.00	0.26	0.77
October	4.1	10.5	1.1	1.17	3.90	0.22	0.73
November	1.0	4.8	Nil	0.65	3.20	0.13	0.62
December	1.0	2.2	,,	0.27	3.60	0.05	0.67
January	0.1	0.7	,,	0.15	3.60	0.03	0.67
February	Nil	0.2	,,	Nil	2.20	—	0.46
March	0.4	1.5	,,	,,	1.20	—	0.22
April	1.0	2.5	0.3	,,	1.20	—	0.23
May	2.4	5.9	0.4	0.30	1.20	0.06	0.22
Total	**21.9**			**10.01**	**34.80**		

13. Not available

14. **(a) Characteristics of soils in the commanded area**

Two main types of soils are met with ; the first varying from deep black to light grey is characterised by high clay content and water holding capacity, the other, red to pale brown, is sandy loam and free draining generally. On basis of the effective depth of top soil overlying *moorum* stratum the soil classification is as follow:—

	0" to 3" (Mal lands)	*3" to 18" (Light soils)*	*18" to 4 feet (Medium soils)*	*More than 4 feet (deep soils)*	*Total*
Percentage	19.2	24.2	21.1	35.5	**100.0**

(b) Not available.

15. **Pattern of cultivation in the area commanded before the scheme came into operation**

Perennial		*Kharif*					*Rabi*					*Total cropped area (T.acres)*
Percentage of principal crops	*Total area (T.acres)*	*Percentage of principal crops*				*Total area (T. acres)*	*Percentage of principal crops*				*Total area (T. acres)*	
Sugarcane		*Jowar*	*Bajri*	*Ground-nut*	*Others*		*Jower*	*Wheat*	*Cotton*	*Others*		
Negligible	0.1	13.0	16.1	7.0	10.6	**139.0**	29.8	8.2	11.3	4.0	**158.9**	**298.0**

16. **Proposed of pattern irrigated cultivation**

Perennial		*Kharif*						*Continued below*
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*					*Total area (T. acres)*	
Sugarcane		*Jowar*	*Maize*	*Groundnut*	*Paddy*	*Others*		
2.7	**8.0**	20.0	10.0	10.0	5.1	5.3	**150.0**	

Continued from above	*Rabi*					*Hot weather*		*Grand Total (T. acres*
	Percentage of principal crops				*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T.acres)*	
	Jowar	*Wheat*	*Cotton*	*Others*		*Others*		
	19.0	10.0	10.0	2.8	**125.0**	5.1	**15.0**	**298.0**

17. **Actual crop pattern obtained after the introduction of irrigation** (*See Annexure I*)

Perennials			*Kharif*						*Rabi*				
Percentage of principal crops		*Total area (T. acres)*	*Percentage of principal crops*					*Total area (T. acres)*	*Percentage of principal crops*			*Total area (T. acres)*	*Grand Total (T. acres)*
Sugarcane	*Others*		*Cotton*	*Jowar*	*Maize*	*Ground-nut*	*Others*		*Maize*	*Jowar*	*Others*		
6.6	0.8	3.6	8.4	28.2	2.9	17.7	20.6	37.8	2.9	5.3	6.6	7.2	48.6

During 1960-61 (year of maximum river supply diverted)

18. **Duty and Delta at canal head**

As anticipated								*As obtained*
Duty (acres per mean cusec)				*Delta (feet)*				
	Kharif				*Kharif*			*Overall Delta (feet)*
Perennial	*Paddy*	*Others*	*Rabi*	*Perennial*	*Paddy*	*Others*	*Rabi*	*Overall*	
50	45	130	115	13.4	6.7	2.0	2.2	2.7	4.7

19. (a) **Number of tanks in operation in the irrigated area and the area irrigated therefrom**

3 small tanks, area irrigated by these merged with the Ayacut

(b) **Number of wells in operation in the irrigated area and the area irrigated therefrom**

6,164 wells, irrigating about 19,000 acres (not included in the Ayacut)

20. **Quantum of river supplies available in relation to withdrawals**

Available river supply is well in excess of proposed diversion

21. to 23. As per 19A-K. 3-My.1

GENERAL

24. **Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns**

Power may be developed, if found feasible

25. **Total cost of the scheme** — Rs. 18,60 lakhs (1960)

26. **Cost per acre irrigated** — Rs. 626

27. Not applicable

27. Not applicable

28. Financial return of the scheme

(i) as anticipated — 2.03 percent

(ii) as obtained — Not available

29. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated cultivation to provide security and improved yield of crops

GHATAPRABHA PROJECT STAGES I & II

Annexure 1

STATEMENT SHOWING AREA IRRIGATED BY CROPS

	Area irrigated by crops (acres)														
	Perennial			*Kharif*						*Rabi*					
Year	*Sugar-cane*	*Others*	*Tota*	*Cotton*	*Jowar*	*Maize*	*Groun l-nuts*	*Others*	*Total*	*Maize*	*Jowar*	*Pulses & vegi-table*	*Others*	*Total*	*Grand Total*
1951-52	200	—	200	500	800	2,200	100	5,900	9,500	1,700	2,200	1,300	900	6,100	15,800
52-53	100	200	300	100	1,400	2,200	200	6,100	10,000	2,100	2,300	1,500	1,000	6,900	17,200
53-54	300	200	500	300	2,100	2,600	800	7,600	13,400	2,300	2,500	1,700	1,100	7,600	21,500
54-55	1,000	300	1,300	900	3,200	3,300	2,100	7,100	16,600	2,600	3,500	1,900	2,300	10,300	28,200
55-56	1,200	400	1,600	2,000	4,900	1,300	800	6,600	15,600	1,600	2,400	1,300	2,000	7,300	24,500
1956-57	2,100	400	2,500	3,300	3,700	2,200	600	6,100	15,900	1,700	1,700	1,500	1,600	6,500	24,900
57-58	3,200	500	3,700	2,300	4,100	2,500	200	5,100	14,200	2,000	1,500	2,500	1,300	7,300	25,200
58-59	3,400	400	3,800	3,200	3,100	2,300	1,100	7,200	16,900	1,200	4,800	4,500	2,700	13,200	33,900
59-60	3,700	400	4,100	4,800	16,000	1,600	10,000	11,700	44,100	1,700	3,000	2,000	1,500	8,200	56,400
60-61	3,200	400	3,600	4,100	13,700	1,400	8,600	10,000	37,800	1,400	2,600	1,900	1,300	7,200	48,600
Average for the 10 years from 1951-52 to 1960-61	1,840	320	2,160	2,150	5,300	2,160	2,450	7,340	19,400	1,830	2,650	2,010	1,570	8,060	29,620

TUNGA ANICUT PROJECT

12B-K.8-My.4

1. **Name of State** Mysore
2. **Scope of the scheme or system**

Irrigation scheme ; based on flow ; Ayacut 27,200 acres

3. **Source of supply**

Tunga at Sacrebyle/Tungabhandra/**Krishna**

Utilisation upstream :

Existing : minor tanks

Proposed : Tunga Reservoir Project

4. Not applicable
5. **Description of the head-works**

Anicut : 1,205 feet long

River sluices : three openings, 11 feet 2 inches x 15 feet each, total capacity 5,055 cusecs.

Head regulator : right, 3 vents, 10 feet x 4 feet each

left, 5 vents, 10 feet x 6 feet each

6. **Description of the canals**

Tunga Right Bank Canal (contour) ; 32 miles long ; perennial (first 15 miles only) ; unlined ; authorised capacity **135 cusecs**

Tunga Left Bank Canal (contour) ; 100 miles long, perennial (first 20 miles only) ; unlined ; authorised capacity **550 cusecs**

7. **Date of beginning of construction** June 1947
8. **Date of beginnng of operation** July 1955
9. **Probable date of beginning of full operation** 1963

IRRIGATION ASPECTS

10. **Gross commanded area, culturable commanded area and Ayacut, district-wise**

District Shimoga

	Right Bank Canal	Left Bank Canal	Total
	....thousand acres....		
G.C.A.	10.6	36.5	47.1
C.C.A.	6.5	29.1	35.6
Ayacut	5.0	22.2	27.2

11. Area irrigated annually and intensity of irrigation

	Area irrigated annually	*Intensity of Irrigation on Ayacut*
(i) Proposed	27,200 acres	100.0 percent
(ii) Actual maximum	17,000 ,,	62.5 ,,

12. Normal rainfall and river supply diverted

(i) Right Bank Canal

Month	*Rainfall*			*River supply diverted*		*Capacity factor*	
	Normal	*Maximum*	*Minimum*	*Actual maximum*	*Proposed*	*Actual maximum*	*Proposed*
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
	inches			*T.M.C.*			
June	4.9	10.9	0.8	0.11	0.16	0.31	0.46
July	9.0	16.7	2.8	0.06	0.28	0.17	0.77
August	4.5	8.2	1.5	0.08	0.28	0.22	0.77
September	4.5	6.5	Nil	0.20	0.27	0.57	0.77
October	4.8	11.2	1.1	0.15	0.28	0.41	0.77
November	1.8	5.4	Nil	0.10	0.16	0.29	0.46
December	0.4	1.5	,,	0.03	0.04	0.08	0.11
January	0.1	3.6	,,	0.04	0.04	0.11	0.11
February	0.1	0.2	,,	0.10	0.04	0.31	0.12
March	0.3	2.7	,,	0.06	0.04	0.17	0.11
April	1.7	6.0	,,	0.04*	0.02	0.11	0.06
May	3.1	10.0	0.5	0.04*	0.02	0.11	0.06
Total	**35.2**			**1.01**	**1.63**		

* *Daily withdrawals data are stated to be not available*

(ii) Left Bank Canal

Month	Rainfall			River supply diverted		Capacity factor	
	Normal	Maximum	Minimum	Actual maximum	Proposed	Actual maximum	Proposed
1	2	3	4	5	6	7	8
	.....inches.....			.....T.M.C.....			
June	4.0	9.7	0.4	0.18	0.77	0.13	0.54
July	7.0	13.6	2.6	0.50	1.23	0.34	0.84
August	4.2	7.9	1.0	0.86	1.23	0.58	0.84
September	4.4	5.2	0.2	0.82	1.20	0.58	0.84
October	4.6	12.5	1.5	0.89	1.23	0.60	0.84
November	1.7	5.6	Nil	0.38	0.67	0.27	0.47
December	0.4	1.3	,,	0.12	0.16	0.08	0.11
January	0.1	3.2	,,	0.26	0.16	0.18	0.11
February	0.1	0.6	,,	0.23	0.15	0.17	0.11
March	0.3	1.6	,,	0.27	0.16	0.18	0.11
April	1.6	5.7	,,	0.12*	0.08	0.08	0.06
May	2.8	10.4	0.5	0.12*	0.08	0.08	0.05
Total	**31.2**			**4.75**	**7.12**		

* *Daily withdrawals data were stated to be not available*

13. Not available

14. (a) Characteristics of soils in the commanded area

Soils in the irrigated tract are red sandy loam and black clayey. The sandy loam is shallow to medium in depth, red to pale brown in colour, underlain with pale coloured decomposed parent material, well drained and contaning small quantity of lime *kankar*.

The black soil is shallow to medium in depth, black to grey in colour, clayey in texture, rich in lime and has high water holding capacity.

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

15. Pattern of cultivation in the area commanded before the scheme came into operation

Perennial		*Kharif*						*Govt. follow land*		*Total*
Percentage of principal crops	*Total area (T.*	*Percentage of principal crops*					*Total area (T.*	*Percentage*	*Total area (T.*	*cropped area (T.*
Sugarcane	*acres)*	*Paddy*	*Jowar*	*Ragi*	*Cotton*	*Groundnut*	*acres)*		*acres)*	*acres)*
2.2	**0.6**	25.9	24.7	21.4	5.5	11.1	**24.1**	9.2	**2.5**	**27.2**

16. (a) Proposed pattern of irrigated cultivation

Perennial		*Kharif*		
Percentage of principal crops *Sugarcane*	*Total area (T. acres)*	*Percentage of principal crops* *Paddy*	*Total area (T. acres)*	*Grand Total (T. acres)*
18.4	**5.0**	81.6	**22.2**	**27.2**

(b) Are there any rules for regulating crop pattern ? Legislation is under consideration

17. Actual crop pattern obtained after the introduction of irrigation

Perennial		*Kharif*		
Percentage of principal crops *Sugarcane*	*Total area (T. acres)*	*Percentage of principal crops* *Paddy*	*Total area (T. acres)*	*Grand Total (T. acres)*
2.9	**0.5**	97.1	**16.5**	**17.0**

18. Duty and Delta at canal head

Perennial : June to May

Kharif paddy : June to November

As anticipated

Duty (acres per mean cusec)		*Delta (feet)*		
Perennial	*Kharif (Paddy)*	*Perennial*	*Kharif (Paddy)*	*Overall*
65	45	10.2	6.7	7.4

19. (a) Number of tanks in operation in the irrigated area and the area irrigated thereform

	Number of tanks	Area irrigated
Right Bank Canal	57	2,551 acres
Left Bank Canal	40	2,187 acres
Total	97	4,738 acres

(Not included in the Ayacu)

(b) **Number of wells in operation in the irrgated area and the area irrigated therefrom**

Nil

20. **Quantum of river supplies available in relation to withdrawals**

River supply much in excess of canal requirements

21. to 24. Not applicable

GENERAL

25. **Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns**

Nil

26.	**Total cost of the scheme**	Rs. 2,31 lakhs (1954)
27.	**Cost per acre irrigated**	Rs. 8,49
28.	Not applicable	
29.	**Financial return of the scheme as anticipated**	1.29 percent

30. **Main features and purpose of the scheme**

Conversion of dry crops to paddy and sugarcane

BHADRA RESERVIOR PROJECT 13B-K. 8-My.5

1. **Name of State** Mysore
2. **Scope of the scheme or system**

   Multipurpose scheme ; flow-cum-storage ; irrigation, Ayacut 241,550 acres
   power, 33,200 k. W. (right bank canal-one unit of 7,200 k. W.; left bank Canal-one unit of 2,000 k.W.; river bed-two units, 12,000 k.W. each)
   (includes irrigation from Deverabilikere Tank based on local drainage and seepage)
3. **Source of supply**

   Bhadra at Lakkavalli/Tungabhadra/**Krishna**
   Utilisation upstream:
   existing: minor tanks
   proposed : nil
4. **Description of the reservoir or tank**

Live storage	54.5 T.M.C
Dead storage	17.1 ,,
Carry-over	9.3 ,,
Annual reservoir losses	4.9 ,,
Filling period	Continuous, but major filling form July to September
Depletion period	Continous
Catchment area	760 square miles
Area submerged	27,802 acres
Full reservoir level	R.L. 2,158
Minimum pond level	R.L. 2,095

5. **Description of the head-works**

   Dam: masonry, 1,445 feet long, 194 feet high; four dykes, total length 3,660 feet
   Spillway: 240 feet long, capacity 106,700 cusecs
   Outlets: one vent of 6 feet x 12 feet and two vents of 8 feet x 15 feet and two under-sluices of 6 feet x 15 feet; total capacity 13,300 cusecs
   Power sluices: left bank sluice, one of 6 feet diameter
   right bank sluices, two of 10 feet diameter each (one for future extension)
   river sluices, two of 10 feet diameter each

6. Description of the canals

Bhadra Reservoir Right Bank Canal (contour); 61.8 miles long (branches 127 miles); perennial; unlined; authorised capacity **2,500 cusecs**

Bhadra Reservoir Left Bank Canal (contour); 48 miles long; perennial; unlined; authorised capacity **335 cusecs**

7. Date of beginning of construction

Irrigiation—April 1947

Power— 1959

8. Date of beginng of operation

Bhadra Reservoir Right Bank Canal July 1959

Bhadra Reservoir Left Bank Canal June 1957

Power—July 1962

9. Probable date of beginning of full operation

Canals June 1964

Power June 1964

IRRIGATION ASPECTS

10. Gross commanded area, culturable commanded area and Ayacut, district-wise

District		*Chickmagaloor*	*Shimoga*	*Chitradurga*	*Bellary*	*Total*
			thousand acres			
G.C.A.	Right Bank Canal	20.6	136.8	171.5	20.0	**348.9**
	Left Bank Canal	—	28.4	—	—	**28.4**
C.C.A.	Right Bank Canal	15.5	102.4	145.1	15.0	**278.0**
	Left Bank Canal	—	22.0	—	—	**22.0**
Ayacut	Right Bank Canal	11.7	80.8	122.5	9.2	**224.2**
	Left Bank Canal	—	17.4	—	—	**17.4**

11. Area irrigated annually and intensity of irrigation

	Area irrigated annually		*Intensity of irrigation on Ayacut*	
	Right Bank Canal	*Left Bank Canal*	*Right Bank Canal*	*Left Bank Canal*
	thousand acres		*percentage*	
(i) Proposed	224.2	17.4	100.0	100.0
(ii) Actual maximum	2.2	15.7	1.0	90.2

12. Normal rainfall and river supply diverted

(i) Bhadra Reservoir Left Bank Canal

Month	*Rainfall*			*River supply Diverted*		*Capacity factor*	
	Normal	*Maximum*	*Minimum*	*Actual maximum*	*Proposed*	*Actual Maximum*	*Proposed*
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
	inches			*T.M.C.*			
June	5.7	9.8	1.6	0.41	0.45	0.47	0.52
July	11.0	20.4	3.5	0.58	0.64	0.65	0.71
August	5.9	12.5	0.9	0.58	0.64	0.65	0.71
September	4.4	6.1	0.5	0.56	0.62	0.65	0.71
October	5.1	11.2	1.3	0.58	0.65	0.65	0.72
November	1.9	5.2	Nil	0.41	0.45	0.47	0.52
December	0.5	1.6	,,	0.27	0.29	0.30	0.32
January	0.1	2.0	,,	0.24	0.30	0.27	0.33
February	0.1	1.1	,,	0.27	0.27	0.33	0.33
March	0.3	1.2	,,	0.26	0.29	0.29	0.32
April	1.7	4.8	0.1	0.27	0.32	0.31	0.37
May	3.2	7.3	0.6	0.03	0.05	0.03	0.06
Total	**39.9**			**4.46**	**4.97**		

(ii) Bhadra Reservoir Right Bank Canal

Month	Rainfall			River supply diverted		Capacity factor	
	Normal	Maximum	Minimum	Actual maximum	Proposed	Actual maximum	Proposed
1	2	3	4	5	6	7	8
	inches			T.M.C.			
June	3.5	7.2	1.0	Nil	4.59	—	0.71
July	6.0	11.3	2.3	0.25	6.45	0.04	0.96
August	4.0	7.2	0.8	0.63	6.72	0.09	1.00
September	4-2	7.8	0.5	0.52	6.50	0.08	1.00
October	4.6	11.2	1.8	0.50	6.60	0.07	0.99
November	1.3	6.5	Nil	0.32	4.82	0.05	0.74
December	0.4	1.5	,,	Nil	3.27	—	0.49
January	0.1	1.8	,,	,,	3.27	—	0.49
Fabruary	0.1	0.6	,,	,,	2.89	—	0.48
March	0.2	1.3	,,	,,	2.92	—	0.44
April	1.3	4.2	0.1	,,	3.28	—	0.51
May	2.7	8.1	0.5	,,	0.47	—	0.07
Total	**28.4**			**2.22**	**51.78**		
Total for both canals				**6.68**	**56.75**		

13. Not available

14. (a) **Charactristics of soils in the commanded area**

		Black soil	Red soil
Right Bank Canal		8.5 percent	91.5 percent
Branches	Anvery branch	15.3 ,,	84.7 ,,
	Malabenur branch	30.4 ,,	69.6 ,,
	Devanagere branch	30.2 ,,	69.8 ,,
Left Bank Canal		7.0 ,,	93.0 ,,

(b) **Has any study been made of the likely effect of the introduction of irrigation on soil charactristics ?**

No

15. Pattern of cultivation in the area commanded before the scheme came into operation

Perennial		Kharif							Wet Kharif				Total cropped area (T.acres)
Percentage of principal crops	Total area (T.acres)	Percentage of principal crops						Total area (T. acres)	Percentage of principal crops			Total area (T. acres)	
Sugarcane		Ragi	Jowar	Groundnut	Cotton	Others	Fallow forest		Rainfed Paddy	Tank Paddy	Garden		
Right Bank Canal													
—	—	8.3	33.0	24.1	16.7	9.5	3.2	212.5	1.4	3.7	0.1	11.7	224.2
Left Bank Canal													
3.5	0.6	19.0	—	—	—	2.0	43.5	11.2	32.0	—	—	5.6	17.4

16. (a) Proposed pattern of irrigated cultivation

Perennial			Kharif			Rabi			Grand Total (T. acres)
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	
Sugarcane	Garden		Paddy	Others		Others	Cotton		
Right Bank Canal									
24.4	18.0	95.1	32.9	10.4	97.1	8.1	6.2	32.0	224.2
Left Badk Canal									
35.4	18.6	9.4	41.2	2.4	7.6	2.4	—	0.4	17.4

(b) Are there any rules for regulating crop pattern ?

Legislation under consideration

17. Actual crop pattern obtained after the introduction of irrigation

	Perennial			Kharif			Grand Total (T. acres)
	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	
	Sugarcane	Garden		Paddy	Others		
Right Bank Canal	—	—	—	100.0	—	2.2	2.2
Left Bank Canal	38.8	0.7	6.2	44.8	15.7	9.5	15.7

18. Duty and Delta at canal head

As proposed													
Duty (acres per mean cusec)						Delta (feet)							
Perennial		Kharif		Rabi	Combodia	Perennial		Kharif		Rabi	Combodia	Over-
Sugarcane	Garden	Paddy	Others	Others	Cotton	Sugarcane	Garden	Paddy	Others	Others	Cotton	all
75	130	55	150	120	140	9.0	5.1	5.5	1.6	2.5	3.8	5.4

19. (a) Number of tanks in operation in the irrigated area and the area irrigated therefrom

	Tanks	*Area irrigated*	
Right Bank Canal	180	8,334 acres	included in the Ayacut ; most of the tanks will cease to operate
Left Bank Canal	135	5,426 acres	

(b) Number of wells in operation in the irrigated area and the area irrigated therefrom

Nil

20. Quantum of river supplies available in relation to withdrawals

Average river supply available at Lakkavali is 109.40 T.M.C. and proposed diversion for irrigation 56.75 T.M.C.

POWER ASPECTS

21. River supplies diverted and operation head

Discharge of water for power is based on irrigation needs. The following table is worked out for river condition as in 1936-37. Power generation will vary from year to year depending on water levels and discharges

Month	*As during 1936-37*						
	Range of operation head (feet)			*Supply passing through turbines (cusecs)*			
				Left Bank	*Right Bank Power House*		*River Bed*
	Left Bank	*Right Bank*	*River Bed*	*Power House*	*Machine No. 1*	*Available for Machine No. 2 when installed*	*Power House*
June	112	39	132	172	1,720	51	630
July	126	53	146	240	1,850	558	650
August	140	67	160	240	1,897	612	3,200
September	144	71	164	240	1,897	612	1,100
October	144	73	164	242	1,897	567	1,130
November	144	75	163	172	1,860	Nil	630
December	144	73	160	108	1,221	,,	650
January	139	69	157	111	1,221	,,	650
February	135	65	153	112	1,195	,,	630
March	130	60	148	108	1,090	,,	650
April	125	55	143	122	1,265	,,	620
May	120	49	138	18	175	,,	650
Total (T. M. C.)				**4.96**	**45.41**	**6.37**	**29.55**

22. Disposal of tail-race waters

The tail-race waters from the Left Bank and Right Bank Power Houses will be used by the canals. The supply from the river bed units will be let into the river downstream

23. Development of load compared with power potential provided

There is ready demand for power and the same will be utilised immediately for Mysore Iron and Steel Works and other industries

24. Quantum of river supplies available in relation to withdrawals

The water supplies required for Right and Left Bank Power Houses is limited to irrigation requirements *viz.*, 56.75 T.M.C. The requirements of River Power House are 29.54 T.M.C. Allowing 4.9 T.M.C. for evaporation losses, the total requirement of 91.19 T.M.C. are available only in 22 years out of 31 years for which data are available.

GENERAL

25. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns

There is a head of 20 feet between the tail-race level and the river bed. This could be developed later for power generation

26. Total cost of the scheme

Rs. 31,93 lakhs for civil works, and Rs. 3,80 lakhs for power

27. Cost per acre irrigated Rs. 1,306

28. Cost per k.W. power produced

Rs. 1, 084/ - per kW. installed upto H.T.Bus. (excluding cost of civil works)

29. Financial return of the scheme

1.52 percent on irrigation (exclusive of power) and 6.2 percent on power at 2.55 nP. per unit at Bus bar (excluding interest on capital and cost of dam)

30. Main features and purpose of the scheme

Conversion of rain-fed cultivation to paddy and sugarcane ; generation of power for industries

TABLES

TABLE I

Particulars of major and medium schemes

Index number	Name of scheme or project	Power installed (k.W.)	C.C.A. or Ayacut	Annual irrigation		Annual diversion	
				Maximum to-date	Ultimate	Maximum to-date	Ultimate
1	2	3	4	5	6	7	8
			... ...a res.....			...T.M.C.....	
	ANDHRA PARDESH		*Ayacut*				
1B-K.7-A.1	Koilsagar Project	—	12,000	9,800	14,500	3.5	3.4
2B-K.8-A.2/My.2	Tungabhadra Project (Jointly with Mysore)	63,000	829,200	282,600	829,200	82.6	135.2
3B-K.8-A.3/My.3	Rajolibanda Diversion Scheme (Jointly with Mysore)	—	92,900	20,100	92,900	10.4	17.1
4B-K.9-A.4	Bhairavanitippa Project	—	12,000	8,700	17,000	3.5	4.1
5B-K.10-A.5	Musi Project	—	38,000	6,000	52,600	2.3	8.4
	Total	**63,000**	**984,100**	**327,200**	**1,006,200**	**102.3**	**168.2**
	MAHARASHTRA		*C.C.A.*				
6B-K.1-M.1	Radhanagari Project	4,800	N.A.	19,700	(20,000)	(6.5)	(6.5)
						3.9	*1.1*
7B-K.5-M.2	Ghod Dam Project	—	103,600	15,100	62,400	0.7	8.4
8B-K.5-M.3	Budhal Tank	—	13,600	7,000	10,500	0.7	0.8
9B-K.5-M.4	Mangi Tank	—	10,000	3,600	9,700	0.4	0.9
10B-K.5-M.5	Khanapur Tank	—	13,500	7,700	10,400	0.7	1.0
	Total	**4,800**	**140,700**	**53,100**	**113,000**	**9.0**	**17.6**
						3.9	*1.1*
	MYSORE		*Ayacut*				
11B-K.3-My.1	Ghataprabha Project (Stages I and II)	—	298,000	56,400	298,000	10.0	34.8
2B-K.8-A.2/My.2	Tungabhadra Project (Jointly with Andhra Pradesh)			See 2B-K.8-A.2/My.2			
3B-K.8-A.3/My.3	Rajolibanda Diversion Scheme (Jointly with Andhra Pradesh)			See 3B-K.8-A.3/My.3			
12B-K.8-My.4	Tunga Anicut Project	—	27,200	17,000	27,200	5.8	8.8
13B-K.8-My.5	Bhadra Reservoir Project	33,200	241,600	17,900	241,600	6.7	56.8
							29.6
	Total	**33,200**	**566,800**	**91,300**	**566,800**	**22.5**	**100.4**
							29.6
	Grand Total	**101,000**	**1,691,600**	**471,600**	**1,686,000**	**133.8**	**286.2**
						3.9	*30.7*

Note —***Figures in italics represent diversion for power generation only.***

TABLE II

Particulars of minor schemes

Serial number	Name of scheme or project	Name of sub-basin	Capacity tanks (M. Cft.)	Capacity diversion schemes (cusecs)	C.C.A. or Ayacut (acres)	Area irrigated during 1959-60 or 1960-61(acres)
1	2	3	4	5	6	7
	ANDHRA PRADESH				*Ayacut*	
	Guntur district					
1.	Undavalli Pumping Scheme	K. 7 Lower Krishna	—	N.A.	1,456	N.A.
2.	Eduvagu Pumping Scheme	,,	112	,,	560	,,
	Total				**2,016**	
	Khamam district					
1.	Ratnori Cheruvu	K.12 Muneru	78	—	1,700	,,
	Krishna district					
1.	Raghavapuram Pumping Scheme	,,	—	N.A.	1,000	500
2.	Krishna Sangameswaram Lift Irrigation Scheme near Munnalur village	K. 7 Lower Krishna	—	,,	1,000	250
3.	Kothajupudy Tank	,,	61	—	732	589
	Total				**2,732**	**1,339**
	Mahbubnagar district					
1.	Sarlasagar Project	,,	475	—	4,000	2,300
	Nalgonda district					
1.	Bheemanapalle Project	,,	203	—	1,860	916
2.	Anicut and Feeder Channel (111)	K. 10 Musi	—	N.A.	511	149
3.	Peddacheruv (196)	,,	29	—	537	406
4.	Peddacheru(1511)	K.7 Lower Krishna	111	—	524	N.A.
5.	Sharfu tank (1559)	,,	N.A.	—	651	,,
6.	Ramasamudram (1244)	K. 12 Musi	90	—	918	445
7.	Vemuluru Project	,,	349	—	3,000	2,204
8.	Modgula Cheruvu	,,	17	—	809	594
9.	Large Tank and Feeder	,,	13	—	837	197

TABLE II (*continued*)

Particulars of minor schemes

Serial number	Name of scheme or project	Name of sub-basin	Capacity tanks (M.Cft.)	Capacity diversion schemes (cusecs)	C.C.A. or Ayacut (acres)	Area irrigated during 1959-60 or 1950-51 (acres)
1	2	3	4	5	6	7
					Ayacut	
10.	Large Tank	K. 7 Lower Krishna	114	—	583	N.A.
11.	Pedda Cheruvu	,,	34	—	503	,,
12.	Gandamalla Tank	K. 10 Musi	66	—	540	,,
	Total				**11,273**	
	Warangal district					
1.	Kopakla Kunta	K. 12 Muneru	N.A.	—	506	631
2.	Pedda Cheruvu	,,	102	—	522	N.A.
	Total				**1,028**	
	Grand total for Andhra Pradesh				**22,749**	
	MAHARASHTRA					
	Ahmednagar district				*C.C.A.*	
1.	Gunodi Tank	K. 5 Upper Bhima	229	63	5,000	1,380
2.	Bahirobawadi Tank	,,	43	8	1,066	454
3.	Durgaon Tank	,,	73	27	1,500	363
4.	Gurav Pimpri Tank	,,	116	13	2,160	1,255
	Total				**9,726**	**3,452**
	Bhir district					
1.	Kamli Project	,,	10	—	2,910	2,400
2.	Talwar Project	,,	115		2,960	644
	Total			—	**5,870**	**3,044**
	Kolhapur district					
1.	Bandhara on Kasari river at Yereij Porlan	K.9 Upper Krishna	—	Lift scheme	N.A	1,443
2.	Bandhara on Kasari river at Punaltirpan	,,	—	,,	,,	1,018
3.	Bandhara on Kasari river at Thana	,,	—	,,	,,	655
4.	Bandhara on Kasari river at Valoli	,,	—	,,	,,	474
5.	Bandhara on Kasari river at Bajarbhagaon	,,	—	,,	,,	624
6.	Bandhara on Kumbhi river at Kali	,,	—	,,	,,	1,000

Table II (*continued*)

Particulars of minor schemes

Serial number	*Name of scheme or project*	*Name of sub-basin*	*Capacity tanks (M.Cft.)*	*Capacity diversion schemes (cusecs)*	*C.C.A. or Ayacut (acres)*	*Area irrigated during 1959-60 or 1960-61 (acres)*
1	*2*	*3*	*4*	*5*	*6*	*7*
7.	Bandhara on Kumbhi river at Sangrul	K. 9 Upper Krishna	—	Lift scheme	*C.C.A.* N.A.	321
8.	Bandhara on Dudhganga river at Boatani	,,	—	,,	,,	(Nil)
9.	Weir on Vedganga river at Surpali	,,	—	,,	,,	(Nil)
	Total					**5,535**
	Poona district					
1.	Pisarve Tank	K. 5 Upper Bhima	51	,,	800	186
2.	Palasdeo Tank	,,	68	,,	1,380	527
3.	Madanwadi Tank	,,	198	,,	1,690	970
4.	Pushpavati Bandhara	,,	—	80	5,040	1,171
	Total				**8,910**	**2,854**
	Sangli district					
1.	Itkare Bandhara	K. 1 Upper Krishna	—	2	92	92
2.	Vajrachunde Bandhara	K. 2 Middle Krishna	—	60	4,500	584
	Total				**4,592**	**676**
	Satara district					
1.	Banaganga Tank	K. 5 Upper Bhima	271	39	4,200	1,805
2.	Bandhara at Urmodi	K. 1 Upper Krishna	—	107	4,500	552
3.	Bandhara at Tarali	,,	—	160	5,100	215
4.	Ranand Tank	K. 5 Upper Bhima	227	40	N.A.	1,118
5.	Daruj Tank	,,	84	30	1,600	776
	Total				**15,400**	**4,466**
	Sholapur district					
1.	Wairag Tank	K. 2 Middle Krishna	53	—	1,250	643
2.	Sapatna Tank	,,	114	—	2,400	621
3.	Chicholi Tank	,,	99	—	2,200	544
4.	Jawala Tank	,,	47	—	1,300	196
	Total				**7,150**	**2,004**
	Grand total for Maharashtra				**57,183**	**22,031**

Table II *(continued)*

Particulars of minor schemes

Serial number	*Name of scheme or project*	*Name of sub-basin*	*Capacity tanks (M.Cft)*	*Capacity diversion schemes (cusecs)*	*C.C.A. or Ayacut (acres)*	*Area irrigated during 1959-60 or 1960-61 (acres)*
1	2	3	4	5		7
	MYSORE				*Ayacut*	
	Belgaum district					
1.	Tank at Parasanahatti	K. 4 Malaprabha	8	—	500	500
2.	Tank at Dominkop	,,	8	—	502	485
3.	Bandhara at Karlanatti	K. 2 Middle Krishna	—	27	2,000	583
4.	Bandhara at Kukadalli	,,	—	40	2,303	900
5.	Bandhara at Gejapatni	,,	—	26	1,100	350
6.	Bandhara at Hosur	,,	—	5	1,170	72
7.	Bandhara at Balekundry	K. 3 Ghataprabha	—	N.A.	566	378
8.	Bandhara at Kolchi	K. 4 Malaprabha	—	100	3,150	2,800
	Total				**11,291**	**6,068**
	Bijapur district					
1.	Lift irrigation scheme at Haveri	K. 3. Ghataprabha	N.A.	—	1,100	1,000
2.	Tank at Kalaskop	,,	225	—	2,823	971
3.	Bandhara at Naraspur	K. 4 Malaprabha	N.A.	—	650	70
4.	Lift irrigation scheme at Shivayogimandir	,,	—	N.A.	1,320	77
5.	Tank at Makhanpur	K. 6 Lower Bhima	105	—	1,072	122
6.	Asundi Tank	K. 2 Middle Krishna	50	—	459	67
7.	Nagathana Project	K. 6 Lower Bhima	85	—	1,600	50
8.	Ramanahalli Tank	,,	440	—	4,800	2,100
9.	Areshanker Tank	K. 2 Middle Krishna	290	—	3,100	900
	Total				**16,924**	**5,357**
	Chickmagalur district					
1.	Brahamasamudra Anicut and Channel	K. 9 Vedavathi	—	15	600	600
2.	Shantipura Anicut and Channel	,,	—	30	1,200	1,200
	Total				**1,800**	**1,800**

Table II (*concluded*)

Particulars of minor schemes

Serial number	*Name of scheme or project*	*Name of sub-basin*	*Capacity tanks (M. Cft.)*	*Capacity diversion schemes (cusecs)*	*C.C.A. or Ayacut (acres)*	*Area irrigated during 1959-60 or 1960-61 (acres)*
1	*2*	*3*	*4*	*5*	*6*	*7*
	Chitradurga district				*Ayacut*	
1.	Sangenhalli Tank	K. 8 Tungabhadra	390	—	1,800	900
2.	Tuppadahalli Tank	,,	357	—	1,400	1,309
3.	Gadimakunte Tank	,,	245	—	785	785
4.	Muthugadur Tank	,,	98	—	550	350
5.	Gayathri Reservoir	K. 9 Vedavathi	642	—	2,020	1,000
6.	Narayanapur Anicut	,,	—	80	3,812	2,000
7.	Parasurampura New Tank	,,	250	—	974	975
	Total				**11,341**	**7,319**
	Dharwar district					
1.	Tank at Alur	K. 8 Tungabhadra	104	—	900	300
2.	Tank at Shiroli	,,	69	—	1,020	600
3.	Tank at Dambal (Extension)	,,	134	—	1,200	300
4.	Tank at Agadi	,,	23	—	650	600
	Total				**3,770**	**1,800**
	Hassan district					
1.	Hirekatto Voddu and Channel	K. 9 Vedavathi	—	50	2,000	1,000
	Shimoga district					
1.	Budigere Tank	K. 8 Tungabhadra	33	—	575	575
	Tumkur district					
1.	Borankanive Reservoir	K. 9 Vedavathi	938	—	2,900	1,650
	Grand total for Mysore				**50,601**	**25,569**

TABLE III

Particulars of small tanks and diversions

Serial number	Name of district	Name of sub-basin	No. of tanks diversions	C.C.A. or Ayacut (acres)	Area irrigated during 1959-60 or 1960-61 (acres)
1	2	3	4	5	6
	ANDHRA PRADESH			*Aya.ut.*	
1.	Khammam	84% in K.12 Muneru and 16% in K.11 Paleru	144	8,345	N.A.
2.	Krishna	76% in K.12 Muneru; 17% in K.7 Lower Krishna and 7% in K.11 Paleru	6	1,914	,,
3.	Kurnool	66% in K.8 Tungabhadra; 25% in K.7 Lower Krishna and 9% in K.9 Vedavathi	45	1.135	,,
4.	Nalgonda	54% in K.7 Lower Krishna; 35% in K.10 Musi and 11% in K.11 Paleru	663	40,207	,,
5.	Warangal	68% in K.12 Muneru; 19% in K.10 Musi and 13% in K.11 Paleru	143	7,658	,,
	Total		**1,001**	**59,259**	
	MAHARASHTRA			*C.C.A.*	
1.	Ahmednagar	K.5 Upper Bhima	3	531	414
2.	Kolhapur	87% in K.1 Upper Krishna and 13% in K.3 Ghataprabha	37	4,771	459
3.	Poona	K.5 Upper Bhima	49	5,054	3,358
4.	Sangli	45% in K.1 Upper Krishna ; 40% in K.5 Upper Bhima and 5% in K.2 Middle Krishna	35	4,185	2,825
5.	Sholapur	50% in K.5 Upper Bhima and 10% in K.6 Lower Bhima	4	455	185
	Total		**128**	**14,996**	**7,241**
	MYSORE			*Ayacut*	
1.	Belgaum	36% in K.3 Ghataprabha; 34% in K.4 Malaprabha and 30% in K.2 Middle Krishna	5	1,256	628
2.	Bijapur	43 %in K.2 Middle Krishna; 31% in K.6 Lower Bhima ; 16% in K.3 Ghataprabha and 10% in K.4 Malaprabha	21	2,087	1,604

Table III (*Concluded*)

Particulars of small tank and diversions

Serial number	*Name of district*	*Name of sub-basin*	*No. of tanks diversions*	*C.C.A. or Ayacut (acres)*	*Area irrigated during 1959-60 or 1960-61 (acres)*
1	*2*	*3*	*4*	*5*	*6*
3.	Chitradurga	73% in K.9 Vedavathi and 27% in K.8 Tungabhadra	1	*Ayacut* 80	75
4.	Dharwar	57% in K.8 Tungabhadra and 43% in K.4 Malaprabha	1	230	140
5.	Hassan	K.9 Vedavathi	1	200	150
6.	Tumkur	K.9 Vedavathi	1	93	60
	Total		**30**	**3,946**	**2,657**

Note;— The percentages in column 3 denote percentages of that part of the district named in column 2 which lies in the Krishna basin.

TABLE IV

Abstract of minor schemes and small tanks and diversions

State/District	Minor schemes as per Table II			Small tanks and diversion as per table III			Total		Duty acres per M.Cft.	Annual diversion T.M.C.
	Number	C.C.A. or Ayacut	Annual irrigation 1959-60 or 1960-61	Number	C.C.A. or Ayacut	Annual irrigation 1959-60or 1960-61	C.C.A or Ayacut	Annual irrigation 1959-60 or 1960-61		
1	2	3	4	5	6	7	8	9	10	11
		—acres—			—acres—		—acres—			
ANDHRA PRADESH		Ayacut			Ayacut		Ayacut			
Guntur	2	2,016	(136)	—	—	—	2,016	(136)	6	0.02
Khammam	1	1,700	(850)	144	8,345	(4,280)	10,045	(5,130)	6	0.86
Krishna	3	2,732	1,339	6	1,914	(1,661)	4,646	(3,000)	6	0.50
Kurnool	—	—	—	45	1,135	(1,000)	1,135	(1,000)	5	0.20
Mahbubnagar	1	4,000	2,300	—	—	—	4,000	2,300	6	0.38
Nalgonda	12	11,273	(6,500)	663	40,207	(23,500)	51,480	(30,000)	6	5.00
Warangal	2	1,028	(500)	143	7,658	(3,778)	8,686	(4,278)	6	0.71
Total	**21**	**22,749**	**11,625**	1,001	59,259	**34,219**	**82,003**	**45,844**		7.67
MAHARASHTRA		C.C.A.			C.C.A.		C.C.A			
Ahmednagar	4	9,726	3,452	3	531	414	10,257	3,866	17.5	0.22
Bhir	2	5,870	3,044	—	—	—	5,870	3,044	25	0.12
Kolhapur	9	(5,535)	5,535	37	4,771	459	10,30	5,994	15	0 40
Poona	4	8,910	2,854	49	5,054	3,358	13,964	6,212	15	0.41
Sangli	2	4,592	676	35	4,185	2,825	8,777	3,501	15 25	0.22
Satara	5	15,400	4,466	—	—	—	15,40)	4,466	15	0.29
Sholapur	4	7,150	2,004	4	455	185	7,605	2,189	16.25	0.13
Total	**30**	**57,183**	**22,031**	**128**	**14,996**	**7,241**	**72,179**	**29,272**		1.79

MYSORE		*Ayacut*			*Ayacut*		*Ayacut*			
Belgaum	8	11,291	6,068	5	1,256	628	12,547	6,696	10	0.67
Bijapur	9	16,924	5,357	21	2,037	1,604	19,011	6,961	12	0.58
Chickmagalur	2	1,800	1,800	—	—	—	1,800	1,800	8	0.23
Chitradurga	7	11,341	7,319	1	80	75	11,421	7,394	4	1.85
Dharwar	4	3,770	1,800	1	230	140	4,000	1,940	7	0.28
Hassan	1	2,000	1,000	1	200	150	2,200	1,150	5	0.23
Shimoga	1	575	575	—	—	—	575	575	7	0.08
Tumkur	1	2,900	1,650	1	93	60	2,993	1,710	5	0.34
Total	**33**	**50,601**	**25,569**	**30**	**3,946**	**2,657**	**54,547**	**28,226**		**4.26**
Grand Total	**84**	**130,533**	**59,225**	**1,159**	**78,201**	**44,117**	**208,734**	**103,342**		**13.72**

(Figures in brackets are assumed figures)

Note:— 1. *The assumed figures in col. 9 are based on the district-wise statistics in Table V.*

2. *Assumed figures in col. 4 and col. 7 have been derived from the figures in col. 9 roughly in proportion to the respective Ayacuts.*
3. *The duty (acres per M.Cft.) is based on Table VI and the assumption that irrigaton in Telngana is generally 80% Abi and 20% Tabi. The same figure has also been assumed for Guntur and Krishna districts.*
4. *The C.C.A. of minor schemes in Kolhapur district has been assumed to be same as area irrigated in 1959-60 or 1960-61.*
5. *The maximum to-date annval irrigation and annual diversion in col. 5 and col. 7 of the statement at the beginning of this Annexure have been assumed to be the same as the annual irrigation and annual diversion during 1959-60 or 1960-61.*
6. *The ultimate annual irrigation in col. 6 of the statement at the beginning of the Annexure has been assumed on the basis of the C.C.A. or Ayacut*
7. *The ultimate annual diversion in col. 8 of the statement of the beginning of this Annexure is roughly in the same ratio as the maximum to-date annual diversion bears to the maximum to-date annual irrigation.*

TABLE V

Ayacut of and area irrigated by minor schemes and small tanks and diversions in Andhra Pradesh

District	Ayacut of schemes							Area irrigated		
	In operation as on 31st March 1951			Which came into operation after March 1951			Grand Total	Average for 1941-42 to 1950-51	Average for 1951-52 to 1960-61	During 1959-60 or 1960-61
	Minor schemes	Small tanks & divertions	Total	Minor schemes	Small tanks & diversions	Total				
1	2	3	4	5	6	7	8	9	10	11
	acres									
Anantapur	8,685	5,964	14,649	—	—	—	14,649	14,340D	12,810E	12,430**
Guntur	1,055	6,429	7,484	2,016	—	2,016	9,500	1,740D	3,136E	2,725**
Hyderabad	7,203	60,111	67,314	—	—	—	67,314	29,625A	38,001B	48,167*
Khammam	6,627	94,218	100,845	1,700	8,345	10,045	110,890	51,560A	85,130C	110,859*
Krishna	14,570	9,640	24,210	2,732	1,914	4,646	28,856	10,230D	20,950E	24,040*
Kurnool	7,415	10,846	18,261	—	1,135	1,135	19,396	20,840D	26,110E	24,160**
Mahbubnagar	14,651	170,811	185,462	4,000	—	4,000	189,462	60,777A	140,343B	161,108*
Medak	—	3,968	3,968	—	—	—	3,968	2,202A	3,607B	4,328*
Nalgonda	24,991	125,762	150,753	11,273	40,207	51,480	202,233	96,836A	142,811B	125,005*
Warangal	20,114	130,930	151,044	1,028	7,658	8,686	159,730	59,195A	119,278B	138,734*

A—Average for 5 years (1941-42, 1944-45, 1948-49, 1949-50 and 1950-51)

B—Average for 9 years (1951-52, to 1959-60)

C—Average for 7 years (1953-54 to 1959-60)

D—Average for 8 years (1941-42, 1944-45 to 1950-51)

E—Average for 7 years (1951-52 to 1953-54 and 1955-56 1958-59)

**—Figures for 1959-60*

***—Figures for 1958-59*

TABLE VI

Crop pattern and duty, district-wise

Serial number	*State/District*	*Average annual rainfall (inches)*	*Crop pattern*	*Duty acres per M.Cft.*
1	*2*	*3*	*4*	*5*
	ANDHRA PRADESH			
1.	Guntur	32.5	*Abi*	5
2.	Khammam	41.3	*Abi and Tabi*	6.67 for *Abi* 3.33 for *Tabi*
3.	Krishna	37.4	*Abi*	5
4.	Kurnool	26.6	,,	5
5.	Mahbubnagar	27.6	*Abi and Tabi*	6.67 for *Abi* 3.33 for *Tabi*
6.	Nalgonda	28.5	,,	,,
7.	Warangal	41.3	,,	,,
	MAHARASHTRA			
1.	Ahmednagar	25.6	*Kharif* 50%, *Rabi* 50%	17.5
2.	Bhir	27.6	*Kharif* 50%, *Rabi* 50%	25
3.	Kolhapur	79.7	*Rabi* 100%	15
4.	Poona	51.2	*Rabi* 100%	15
5.	Sangli (South Satara)	24.5	*Kharif* 25%, *Rabi* 75%	16.25
6.	Satara	49.2	*Rabi* 100%	15
7.	Sholapur	23.6	*Kharif* 25%, *Rabi* 75%	16.25
	MYSORE			
1.	Belgaum	39.4	Mixed crops Paddy and Sugarcane in west zone and dry crops in east zone	10
2.	Bijapur	23.6	Dry crops like Jowar, Wheat and Cotton	12
3.	Chickmagalur	88.6	Paddy and Sugar cane	8
4.	Chitradurga	21.7	,,	4
5.	Dharwar	27.6	Mixed crops	7
6.	Hassan	39.4	Paddy	5
7.	Shimoga	78.7	,,	7
8.	Tumkur	27.6	,,	5


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